

AVIATION WEEK

DEC. 10, 1951

50 CENTS

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Phantom view showing general arrangement of Northrop Scorpion F-89 interceptor

Secret of the Scorpion's Range!

Bullet-sealing fuel tanks and PLIOCEL wing tanks—both by Goodyear—give extra-long range to the Scorpion, the U.S.A.F.'s newest all-weather interceptor.

Because of the extremely thin wing section of this twin-jet aircraft, twelve bantamweight PLIOCEL tanks made by Goodyear are used to take advantage of every available nook and cranny—providing maximum fuel capacity with minimum weight. Folding easily for installation in small apertures, these specially-treated bladder cells of gastight nylon fabric actually outlast heavier metal containers!

Four lightweight bullet-sealing tanks in the fuselage complete this new 16-tank, 100%-Goodyear fuel tank system—a typical example of practical Goodyear service to aviation. For full information on these and other Goodyear aviation products, write: Goodyear, Aviation Products Division, Akron 16, Ohio or Los Angeles 54, California.



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MECHANICAL
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NEWS DIGEST

DOMESTIC

Super Canoe has been certified by CAA for immediate passenger operation and will be placed into service shortly by EAL between New York, Chicago and Florida. The big transport went through its CAA trials in less than a month for 116,000 lb. maximum takeoff weight, has a 127 mph cruise speed at 11,500 ft. and can get off with three engines over a 50 ft. obstacle from a 5,000 ft. runway.

Personal and executive plane shipments, according to plane makers, are on pace during October since the 135 aircraft valued at \$708,000.

Grid aircraft shipments during August totaled 179 aircraft valued at \$5.5 million, with an average weight of 272,500 lb. Bunkings at the end of the month came to 647 planes of 3,000 lb. and over. In August 791 engines are going, 349,781 hp. were delivered. First plane registered was 127,068 and engine plants employed 71,293.

CAA is approving Raytheon Express Agency contract with 31 airlines until Dec. 31, 1952, but the pact is "non-exclusive" in the handling of air express, but not dangerous cargo, in case of lack of alternate facilities would be slow to national defense.

Studies in the name appeared for the Lockheed P-44 all weather fighter.

UAL DC-3 crash of three miles north of the Rocky Mountain Arsenal near Denver, Colo., on Dec. 6, during a training flight, killing pilot captain and two trainers aboard.

Spartan Aircraft Co., Tulsa, is negotiating with Reynolds, Metals Co. and the government in an effort to open an aluminum plant in Kansas, according to an attorney for Spartan.

Wilfred E. Beck, Boeing Aircraft Co. vice president engineering and sales, has been elected president of the Institute of the Aeronautical Sciences for 1952, succeeding L. B. Richardson, director of research and development of Panchell Engine & Airplane Corp.

EAL DC-3 crashed with a Civil Air Patrol Piper L-4 on Nov. 27 but landed safely at Ocala Fla. The Piper crashed killing its sole occupant.

AMC office shift has moved Aircraft Production Resources Agency from

Wright Patterson AFB's Area B to Building 202 at Area A, according to Col. Ross D. Wiering, AFPA director. More will help make more room for Research & Development Command at Area B.

FINANCIAL

Northwest Airlines reports a \$5,331,123 net profit before provision for income taxes for the first ten months of 1951 compared with a loss of \$233,876 for the same period last year. Operating income of Nov. 1 this year totaled \$41,213,805 compared with income for the same 1950 period of \$99,777,806.

Southeast & Western Airlines reports net earnings of \$112,092 on operating revenues of \$5,365,742 for the nine months ending Sept. 30 after provision for federal income and excess profits taxes.

Northwest Atlantic has declared a 25 cent dividend on common stock payable Dec. 22 to shareholders of record on Dec. 10. Net profit for the quarter ending Dec. 31 came to \$528,481 after providing for estimated federal income and excess profit taxes.

Planner Air Lines is paying a 10-cent per share dividend on Dec. 10 to holders at record. Dec. 1 PAA's net income after taxes for the first nine months of this year totaled \$69,963, compared with \$72,873 after taxes for the same period last year.

INTERNATIONAL

USAF's first Alouette has opened its operations, with arrival of the C-47 at the 14th Air Force Base, Fort Bragg, N.C. The new base, about 50 miles northwest of Charlotte, is one of five bases built for USAF in the continent.

International relief traffic from western war-torn Europe to the 14th Air Force Base, London, total \$120,412,068 for the last nine months of 1951 with transatlantic effort ratio for the period being 36.2%.

Luxair Unides C-54 crashed on take off from San Luis, Mexico, Nov. 29, killing at least 13 and injuring 7. After crash, the aircraft had delayed landing at place, pilot attempted bailout in distress and reportedly hit a hole in a fence post.

Air India International reportedly is negotiating with Lockheed Aircraft for two Super Canoes starting 60.

THE CHANNEL ISOLATOR

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AVIATION CALENDAR

Dec. 11—Lecture, "Separation Plans Involving Separation," at meeting of the Institute of the Aeronautical Sciences, New York Section Engineering Sciences Bldg., New York.

Dec. 12—Lecture Series, "Air Traffic Control at Transcon-Pasadena Air Base," Wagon Club, Biltmore Hotel, New York.

Dec. 17—Wright Day Dinner at New Club at Washington, Hotel Statler, Washington, D.C.

Dec. 17—Wright Brothers Lecture sponsored by the Institute of the Aeronautical Sciences, U. S. Chamber of Commerce Building, Washington, D.C. 1 p.m.

Dec. 17—Wright National Lecture, principal speaker, Major Alexander J. de Bock, New York.

Dec. 18—Wright Brothers Lecture (repeat), WPA, Auditorium, Los Angeles Flight Production Lab, Cleveland.

Dec. 21—Wright Brothers Lecture (repeat), 134 Western Bldg. Bldg., Los Angeles.

Jan. 14, 1952—Annual Dinner at Sheraton Hotel, New York.

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8 EIGHTY EIGHT PERFORMANCES



NO. 1 ROYAL NAVY FLAT TOP—HMS Eagle, has new 800-hp engine in the Royal Navy, weighs 50,000 tons and can carry 100 aircraft. Eagle roughly compares with U. S. Essex-class flat top. Royal Navy's present carrier strength is seven ships, plus all the 15.



BORUG DET—Two recent P-51 Mustangs built in France for the different purposes on the C-119 H transport (left) and the P-51 Mustang (right). P-51 Mustang has 14 pistons, has two 150-hp. Allison piston engines and two Allison T-1800 piston engines of 150-hp. thrust, arranged in tandem pairs at each engine nacelle. Gross weight is 10,000 lb., empty weight 10,000 lb. Gross weight is 10,000 lb., empty weight 10,000 lb. Gross weight is 10,000 lb., empty weight 10,000 lb.

Foreign News In Pictures

MOSCOW AIR TRIENNAL—Passenger waiting room, reminiscent of U. S. railroad stations, at the Central Airport serving Moscow is depicted in this view just released by Aviation Week in the Russian photo agency Sovfoto. The airport which opened passed the picture and it was taken at the opening of "the summer flying season." Large map of the Soviet air transport system shows the main lines and airports.



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LARGEST EXCLUSIVE MANUFACTURERS
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LIGHTER, MORE RELIABLE ELECTRIC SYSTEMS WITH New G-E Alternators



Rugged tests of new G-E generators (arrow) under more than actual conditions establish their dependability in service. An outstanding feature of these alternators is their

300% short-circuit current rating. This provides a safety margin to insure operation of the first clearing device and gives positive short-circuit protection.



30-KW D-C GENERATOR
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Weight is down 30% with the new alternator, over an equivalent d-c generator. Rotor and slip ring brush wear is negligible at the low excitation currents in a constant speed reg and brush wear is of a generator under conditions of high short-circuit and high power output are eliminated.



Mostly perfect line wave output of the alternators allows proper operation of electronic equipment demanding a low percentage of harmonics in the voltage wave form.

300% Short Circuit Current Rating is Feature of New Line

Savings in weight and space plus greater reliability are major advantages of alternating current in aircraft electric systems. General Electric offers these benefits in a new line of 3-phase, a-c generators to satisfy nearly every combination of engine, voltages, and loads.

Available either wye or delta connected in a variety of ratings and speed ranges these alternators meet military specifications MIL-G-6999. Already a large number are on order by airplane manufacturers in addition to quantities being furnished the military services for both fighters and heavier aircraft.

Whether your problem is a c or d, a single instrument or complete electrical system for a fleet, contact your General Electric aviation specialist, or write General Electric Company, Schenectady 5, N. Y.

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WHO'S WHERE

In the Front Office

Jerry A. Mathias, Jr. has been appointed vice president-manufacturing with Eds Corp., College Point 1, L. I., N. Y. He previously had been factory manager since 1948. Mathias had been vice of auto sub duty with the Navy in World War II.

E. E. O'Brien has been named in the new post of executive vice president-deputy projects for Westinghouse Electric Corp. and Tom Toner, vice president-line relations, success. O'Brien's former title was managing director in addition to his present job. Charles E. McGee, public relations manager for the American World Airways, at New York, has been elected a vice president of the Adams & Son, Inc. New York, succeeding James H. Hart, president.

Changes

Biggs, Geo. T. C. Brown (ret.) has been designated manager of the General Electric's new Advanced Electronics Center at Condit Technology, Johns, N. Y.

W. Kenneth Hagedorn has been promoted to sales manager of the Wright Aircraft division of Curtiss-Wright Corp.

Carl R. Babin has been made head of product administration and plans services of Nucleon Instruments, Inc., Milford, Conn.

Robert J. Hansen has been appointed vice president of the New York Service Station, Inc.

William H. Bates has been designated for his responsibility with the American Corp. Buffalo, N. Y.

W. A. Tinsley, former Texas chief in Detroit, has been named factory manager of the Lincoln Aircraft Corp., Tinsley, California.

Thornton W. Wilkins has been named assistant commercial sales manager of Lockheed Aircraft Service, Inc.

Robert L. Johnson has been promoted to chief of the New York Service Station, Inc. in New York, formerly manufacturing director.

Russell A. Brown, Jr. has been made manager of plant engineering for the General Electric's Machine division, Portland, Ore.

Gene T. Nordberg has been appointed sales manager of the Tinsley Aircraft Corp., Tinsley, California, and American Production, Inc.

M. W. Rapp, 24th St. has been designated director of public relations for the Republic Co., New York City.

James P. Butler has been promoted to Chief of the Republic Co. in Detroit, Michigan, in charge of operations at Plant 1, Detroit, Mich.

Albert W. Gifford has been named director of purchasing for the Republic Co. and Plant City, N. Y., and Donald E. Gifford, in the company's new general director at Washington, D. C.

Victor T. Radabaugh has been made manager of public relations and advertising department for the Republic's North American and Canadian divisions.

INDUSTRY OBSERVER

► Royal Canadian Air Force is ordering two de Havilland Canucks for speed and long range operations and for training exercises in high altitude level operations. Canada's home grown jet trainers, the Arrow, is scheduled to be completed sometime for next phase with Canada.

► Rapidly mounting USAF interest in the new Pratt & Whitney J-57 turbojet has given rise to speculation in Detroit that the Chrysler program to build Pratt & Whitney's lower-powered J-45 engines at a new plant in early construction stage at Mt. Clemens, Mich., may be scheduled to become a second source of J-57s.

► New outgrowth of the CAA-sponsored AG-1 agricultural spray plane developed at Texas A&M College by Fred Weick, is the Glean Project, a program to develop a new type agricultural airplane from a Piper J-3 Cub with a Lycoming engine. Engineers of the Ohio Agricultural Experiment Station Research Foundation are working on it at Coshocton Manufacturing Co., Urbana, Ohio, where support and facilities are provided by the company. The company says the AG-1 is a new design, and lower cost plane designed for it. They will seek to incorporate as many as possible of its features in their project. Piper Aircraft Corp. donated the engine and engine, McClellan Corp. is manufacturing a propeller. Stolls Tube Co. is providing tubing and Glean Supply, Kansas City, Mo., is providing the main wing has been revised to include the new features.

► First release results of Canadian Ltd.'s B-4000 fighter jet fighter production have gone into service with the RCAP in Britain. The Canadian Corps Squadron 408, equipped with North American Avionics-designed planes, will be augmented soon by two additional squadrons to form the 1st Fighter Wing RCAP in Britain. Estimated plane call for as an group of 10 RCAP squadrons, presumably mostly fighters, to be stationed in Britain along with British and USAF fighters and bomber units there. The 4th Canadian Bomber Squadron was disbanded by the British crown in May 1955.

► Glenn L. Martin probably, after production, B-57 fighters is called to be planning on incorporating some of the radical design features of the latest version into a forthcoming development of the British Canberra, which may be designated the B-57B. The B-57 includes such features as variable incidence wings, fuselage leading gear with retracting wheels at wingtips, all-weather instrumented tail at top of vertical stabilizer, etc.

► Crews of the Royal Australian Air Force are forming Lockheed Neptune long range patrol bombers under the Pacific Base, California. First two have arrived at the Royal Australian Air Force, New South Wales, and others of the PVV type will follow, according to the 1946 post from the Transcontinental Pacific, January 10, 1955. Navy PVV-1 plane, which set the all-time record for a long range patrol of 11,228,915 mi. from Perth, Australia, to Columbia, Ohio.

► French made Navy jet engines may be used to power the first Canadian built T-11 jet transport plane, built by the Republic of Canada, the Navy jet engine at the new plant at Rohn-River, in building of the Canadian Ltd., and will soon be in production. The jet engine of the PVV type will follow, according to the 1946 post from the Transcontinental Pacific, January 10, 1955. Navy PVV-1 plane, which set the all-time record for a long range patrol of 11,228,915 mi. from Perth, Australia, to Columbia, Ohio.

► Experimental fabrication has started at Douglas on assembly of the first C-47B turboprop cargo transport, scheduled for delivery in 1955. Approval of military, including flight deck, pods and main landing gear changes, is most complicated. First contract calls for one day, powered by Pratt & Whitney T1-34-A turboprop engines of 1,800-hp each, using Corbin propellers. Pressurized flight deck will provide operations to 25,000 ft, while the cargo compartment will remain unpressurized.

► Modernization of a windmill at Condit Technology's Aircraft Laboratory for tests at supersonic speeds will be financed by USAF as part of a \$1.5 million USAF program to expand testing facilities there for military aviation research projects.

Procurement Czar?

Support for a military procurement "czar" is "soaring through all ranks," and get first things done, first is being wiggled up to a point that has the armistice worded.

"Automatics to outside assistance," the services want to risk their own skins separately, or deal at present the program.

The threat that it may come to pass, though, is spurring Army, Navy and Air Force to streamline procurement work-up in dual mode operations.

Navy's Secretary Don Kirkham, putting Navy efforts on record against the "czar" plan, is urging contractors to make common decisions "in the line of organization or operation that will produce the most efficient and efficient supply system."

• His Comment

"The Navy is opposed to the concept of a fourth tier of supply in a military supply system, the basis that most efficient and efficient supply operations result from duals of the three services maintaining and operating its own supply system. This policy conforms to the current Department of Defense policy but then no one who is adequately planning a campaign for a victory."

The ultimate proposal, spelled out by Sen. J. Lee Johnson's Senate Procurement Committee, that we give our top level consideration in Washington.

• **Procurement Committee Board Chairman** John D. Seidl, Jr., is at it now. Members Board's other three members, the undersecretaries of the three services, Johnson's committee charged, are simply pointing for their own service.

• **Establish an Interagency Defense Procurement Center** This is a last hope. But if it's done, Seidl would like to see it done.

Some military manufacturers like the idea of a "czar" to push aircraft and engine production. They feel that more uniformation the services are now handling too far backside to avert crisis.

But the addition of a fifth to push the air plan and get dual against the services.

Congress vs. Wilson

The new House Defense Mobilization Director Charles Wilson and the influential Senate Procurement Committee is this:

• **Then Senate committee wants top priority** to go to the production of airplanes and other items to build up a "military" industry, strength in being in short need. The military, with responsibility to meet its own needs, is not to be with the Senate going on this issue.

• **But Administration's mobilization plan** goes priority to basic industrial expansion. It gets less emphasis on getting planes off the production lines for a striking force, more emphasis on civilian power and aluminum expansion to build the base for aircraft production.

Administration says it is the least paid but takes heavy to get a force in being. It shows off opening outside out of the common consumer for new use, assumes that when civilian production gets into full swing, as most a week, there'll be plenty of materials for both war and home.

But Johnson's committee will keep demanding Wilson to shift more emphasis to civilian output. Members are perturbed at the postponement of the "target date" for achievement of a "military" industry force in being.

Mail 1952 was originally the deadline for a 35-year USAF to bring. Now, aircraft manufacturing won't reach peak output for the program until 1953.

Regret made by Wilson to the Committee's criticism of lagging aircraft output:

• **Assault, other defense requirements get "best call"** "We have given them practically everything that is needed for them to meet their schedule. We are not short of any airplanes, or a single of materials that have gone into building aircraft output."

• **Material defense drive** "But I think we are going to have increasing difficulty building aircraft and other defense materials requirements" simply because the military requirements are more and more in the past the production contemplated in the near future where the requirements... will be right up to the rim, but of our supply—especially in metal (or an alloy for aircraft engine).

• **Behindhand new design** Design of sophisticated military tools, "which we showed off the steel for only in the last six months," is what's slowing down building-up of aircraft capacity and holding down production.

• **Better and gone** "I believe we are, with most major changes, get the defense job done, and, in the near future, be able to maintain the existing civilian production."

National Transport Policy Shelved

A national transportation policy—variously called "total control of transportation," "coordination of transportation" and the like—is on the shelf, indefinitely.

Whatever the name, it implies a single authority over all forms of transportation—which air transport industry members oppose.

There's a twist in the cards of the two most powerful advocates of a "National Transportation Policy":

• **Commerce Secretary Charles Sawyer** is largely responsible for the establishment of an Undersecretary of Commerce for Transportation to direct and coordinate CAB and ICC.

But cabinet members, as well as air transport and Congress, have already indicated such appointment in the regulatory agency by a political appointment that the Transportation Undersecretary's office has a real war to launch to fulfill its original purpose.

• **Well-known Transportation Association of America**, represented several years ago to make a moderate public support for a single regulatory agency, has apparently decided that now isn't the time to live up an airline industry fight. Ward passed on to focus efforts to shut TAA's policy board, won't even consider the single regulatory proposal.

Service Schools: Extermination?

Private flight and aircraft maintenance schools—now free the line with USAF objectives to train flying cadets at USAF bases—are fighting for survival.

The number of civilian flight schools already is down to 1,376 from 1,387 in mid-1948. The 41 private A and P schools with 17% of enrollment in the CP program which now cut off last Feb. are faced with a bleak outlook.

An ROTC program, governing hundreds of ROTC colleges to conduct flight training, is the only flight hope for the civilian flight schools, but this won't be inaugurated until September, 1952.

—Katherine Johnson

Army Sets New Plans to Operate Aircraft

• So far, ground forces and AF agree only on plane operations; procurement roles still uncertain.

• But with weight limitation on its buying removed, Army now can firm up plans for what it needs.

• And high on its list of desirable types is a small, fast, plane to kill off enemy observation craft.

New expansion plans for much heavier emphasis on Army aviation in the combat zone are being worked up at the Pentagon and in the AFM. Most whole regulations throughout the recent Army-AF Trade agreement canceling weight limitations on Army aircraft are making the rounds through staff agencies, the necessary inter-agency coordination.

Both services are reluctant to interpret, even informally, what the first inter-service agreement means. Army itself has been somewhat stiffed down by the working levels of both services and needed to "officialize."

• **Restrictions**—An AF force status, even though not Army concern—that Army will remain dependent on USAF for major outfit and technical support. Army will still be authorized from procurement of aircraft to seek large numbers that they already upon USAF roles and missions.

The restriction which previously barred Army from procurement of fixed wing aircraft weighing more than 2,900 lb and rotary wing aircraft weighing more than 3,000 lb, was cancelled by the North Atlantic Treaty and the USAF Service Plan, the last week in October (Aviation Week, Nov. 5, p. 17).

At the present time, Army is operating a considerable number of fixed wing aircraft and a large number of rotary wing aircraft. The value of fixed wing to the helicopters in Army units is probable, as a state of 11, Army states.

By type, the following aircraft are now in operation by Army:

Fixed-Wing Aircraft

• **Cessna 140**—A two-place piston aircraft in combat use as "fire observation post" to adjust artillery fire. It is also used by engineers and intelligence agencies as well as in reconnaissance operations for reconnaissance and observation.

Waco, of the use of this type of aircraft has been established in reconnaissance operations in Korea, where out-of-the-ordinary conditions, according to Army sources, and that the reconnaissance pilot was his own and was north air officers in the ground.

The plane was being used by Signal Corps for war liaison and its acquisition for reconnaissance over possible bridge areas.

Considered the as "top" of the Army, it has been the replacement for the Anson 1-5 and Stearman 1-5, both of which are almost completely phased out of the Army, both in Korea and in Continental U. S.

• **Boeing Stearman 1-5**—A light four-place biplane used by Army as a light cargo aircraft, as well as for observation for use in division, corps and army headquarters.

Ocean Fare Pact

A trans-Atlantic roundtrip coach fare of \$417 during the last season from New York through March was agreed upon last week by North Atlantic Treaty and the USAF Service Plan, the last week in October (Aviation Week, Nov. 5, p. 17).

The April-through-October coach fare will be \$370 one-way, \$486 roundtrip. The service is scheduled to begin May 1, 1952. Agreement by the eleven nations concerned came after eight days of conferences.

The American World Airways' chief exponent of the ocean coach service, immediately announced that during May 1 it would operate four roundtrips weekly with 61 passenger Douglas DC-4B aircraft. PAA originally had agreed for a \$275 \$274 one-way (\$491 \$492 roundtrip) coach fare.

headquarters. The aircraft is used only in Korea and Europe, and will be phased out as soon as additional aircraft take to fill.

• **Cessna 140-126**—Also a general purpose light transport aircraft in order to the L-17, it has replaced the L-17 in continental U. S. Considered the as an extreme aircraft, it will be phased in quantity. It is also scheduled for phase-out as soon as newer types can replace it.

• **De Havilland "Beane" L-17**—Often called both "Beane" and "Beane" for light utility, the plane can transport litter patients and considerably more cargo than the L-17 or the L-17-126. This aircraft is replacing the L-17 in Korea at the present time and has been ordered by the Army in large numbers for future delivery.

• **Boeing Twin Engine L-24**—Army's first twin-engine transport at somewhat larger than the L-17. This plane is scheduled for administrative transport of high-ranking Army officers.

So far, only the line has been purchased for test purposes but Army will order a considerable number for 1952 and 1953 delivery and subsequent orders in 1954 and 1955. The plane will be purchased in sufficient quantity for assignment to units as low as division level.

Helicopters

• **UH-1H**—The only helicopter generally on Army combat duty in Korea at present, argued to move Army units down to and including infantry, represent levels for use in reconnaissance, war zone reconnaissance, message carrying and supply drops.

The UH-1H is also used by Army's helicopter detachments now assigned to medical evacuation units for evacuation of the severely wounded.

• **UH-1H**—It is used generally for the most purpose in the UH-1H aircraft that more are in use in Korea. H-15 is being sent to the U. S. Army in Europe and in the Continental U. S.

Army aviation sources assert that are having an exceedingly difficult time in obtaining UH-1H and Sikorski HO4S helicopters, although they claim orders were placed in mass quantities in advance of either Air Force or Navy for transport in Korea.

• **The Helicopters**—There is considerable question arising from procurement

Air Coach Snag

• Airline heads opposed to CAB expansion policy.

• But nonaligned advocates were not at session.

Civil Aeronautics Board appears to have lost touch now as to its role in making certificated airlines grow to expand air coach service.

The Board called a closed-door meeting of all the airline presidents, asked them what they thought of a proposed CAB policy statement promoting such expansion on coach service by the rules for certificated airlines.

• **Push Expansion:** The airline chiefs seemed to oppose such points they were asked to comment on.

But CAB was coming out with its pol-

icy statement anyway, promising the U.S. public the Board will push air coach expansion.

Right now, the rule definitely selected coach expansion by a certified airline in American Airlines' plan to add two DC-4 coaches in April and another in June.

One official who attended the closed-door meeting between CAB and the certificated airlines said the airline response to the CAB belief was in effect: "We're doing all in us, let's not rock the boat."

Asked the president of a top airline what they said: "Text what did they ask us to do? We're not at all nervous." The carrier then has another view: "Hold another meeting soon."

Some of the questions CAB asked its leading airlines were:

• Should coach fares come down next April when the present 40-cent fare schedule expires? Answer was No.

• Should daylight coach be expanded

by CAB's filing present schedule in structure of most coach routes? Answer: No.

• Should more coach service be provided by off-hour operation of local area airlines? Answer: Mostly No. But some local service operators asked CAB if they might not try. CAB said it would investigate.

Some 25 airline leaders attended the meeting. About ten took active part in the discussion.

The certificated airlines were asked, but not the noncertificated airlines operating under CAB exemption as large irregular carriers.

Because of this, Air Coach Transport Association President James H. Hays, after conferring with some of the noncertificated members, called off a telephone to CAB Chairman Noyes asking him to consider the closed meeting as the voice of representatives of the public. See Hays' story.

Excluded from this meeting is the

public and the entire independent airline industry which organized, funded and developed law suit on transportation, in spite of overwhelming CAB opposition and constant harassment by the Board and the subcommittee. The holding of this secret meeting in private proved that either the Board is decided not to be subjected to public scrutiny or that at least it must receive the stamp of approval of these carriers. Regulations of all American air transportation in secret conference . . . is contrary to the principle of ethics of the CAB.

• **Other Questions:** Among other questions reported by CAB Chairman Noyes at discussion of the meeting were:

• Scaling density of air coach planes.

• Services to passengers on coach flights. On that there was agreement. No free meals, but coffee tea is paid.

Another meeting is expected soon. CAB is now finalizing its plan that regular airlines would eliminate all public consciousness and necessity for confidence of any, now speculated as coach lines. Yet only American Airlines has promised to help do so.

CAB would like to see not a more definite promise of regular air coach service for the new routes. U.S. public, but at its last report to the airlines to back it up CAB appears to have been strong resistance to "expansionism" now.

Some observers say CAB now comes out with its coach expansion promises. CAB's resistance staff is here to sell on air coach expansion now, in use all the time.

• **Their logic is this:**

If you service existing air lines and cut lines out entirely, you will get higher in the volume of traffic and higher in the price market higher in the price of supply and demand rates.

Board also is sensitive about the fact that the CAB introduced airlines generally serve with the schedule which the nonaligned expect to fly about one million miles and low economic gains below profits in 12 a week and pay.

One example of how CAB left it is the case of United Air Lines this summer. Before CAB released its demand of application of schedules to the regular nonaligned flights to San Francisco and Los Angeles the CAB left it to the airlines to get their flying. San Francisco New York coach service.

• **Full Loads:** Officers in denial of public consciousness and necessity for public service in making airlines and airport personnel to these needs were now saving full loads of coaches and others.

United scheduled one daily DC-4 flight, stating this fall that United said it couldn't do it until it was 100% profitable. It serves the new DC-4 coach competition American and Constellation coach competitor TWA do.



NEW ADMA PRESIDENT George W. Johnson III (center) chairs while presented to retiring President Robert W. Robinson (right) while C. B. Van Dusen looks on.

Civil Air Equipment Needs Cited

ADMA conference urges non-air carriers to show their 'essentiality' in the defense picture.

Relief for scores of smaller manufacturers of aviation equipment came in the critical material shortage era by a sight.

At the newly formed meeting of the Aviation Distributors and Manufacturers Association in New York, leaders of the industry and the manufacturers and distributors of parts and equipment for competition-owned aircraft, agricultural planes and related lines for leaders with increased staff.

• **Board News:** Members' The largest manufacturer of equipment who are members of ADMA, such as Bendix Systems Corp., line cuts to government production facilities through the Aircraft Industries Association and industry officials. The ADMA board, which is the ADMA's board, will work with ADMA which acts as a demand agency for non-air carrier aircraft. The "essentiality" of all non-air carrier aircraft is now being generally acknowledged by Washington officials, who are willing, however, to guarantee continued membership of government non-air carrier aircraft.

• **How the non-air carrier has been to realize the essential character of most government-owned aircraft was pointed up by Joseph T. Grotzer, executive of AIAA, Personal Aviation Council, who attended the ADMA meeting. He said that such a war to obtain aircraft for materials in manufacturing civil flight planes.**

• **From These Civil-Air:** The government for materials for civil aircraft are necessary to help the small non-air carrier and its distributors. ADMA's mission, including the meetings of New York's Waldorf Astoria Hotel, agreed they would have to become far more active in pressing their case to the government of relief from defense materials shortages to be obtained.

Up to now, because of the small quantities generally involved, most manufacturers have been able to find substitutes for critical materials. One aviation manufacturer, for example, has replaced brass for leads with stainless steel.

The growing need for an aircraft equipment manufacturers and their distributors to establish the essentiality of their role in the defense picture was an ever increasing topic at the ADMA meeting.

• **To be Defense-Private:** Private for government aircraft ranked low in importance when the more than 140 manufacturers of parts and materials and their suppliers, in their big 400,000 contract market is organizing the company team aircraft order and the spread for. This would be if the big line speaker was to service five private but aircraft allied with them and other non-air carrier airlines, such as the Air Force's contract flying school program.

Distributors were encouraged by the increasing volume of manufacturers' demand policies, particularly those who are working large purchases to deal with the distributor and not with the manu-



PERFORMANCE OF BEECH T-36 advanced twin-engine transport shows engine over World War II Twin Beech AT-7/UC-45.

Air Force Reveals Beech T-36 Details

Two details disclosed are the new Beech T-36 advanced trainer transport, which will be built both by Beech and Cessna. The new T-36 is a four-engine aircraft, built on requirements and performance from the late Twin Beech advanced trainer and other major parts of World War II, cost considerably augmented AT-7 and UC-45.

The new T-36 will have a cruising speed of over 180 mph with more an official report indicating a top speed equal to that of World War II piston engine fighters previously due to 180 mph. That compares with a 128 mph speed quoted for the UC-45.

Here is how other performance data and specifications estimated for the new T-36 compare with those of the World War II UC-45:

- **Powerplants:** Two Pratt & Whitney R-2500s of 1700 hp each, total rating, compared to two Pratt & Whitney 1700 hp at 450 hp each.
- **Empty gross weight:** Over 15,000 lb compared to 7,500 lb.
- **Service ceiling:** 14,000 ft compared to 12,000 ft.
- **Wingspan:** 70 ft compared to 67 ft.
- **Engine length:** 57 ft 2 in. compared to 54 ft 3 in.

The new T-36 is designed for a combat radius of over 600 mi, while in some conditions the older plane had a range of 900 mi in total.

The T-36 is designed for a crew of four, as a transport or pilot trainer with three students and an instructor. As a transport, it will have a cargo of two tons and will have seats for 12 passengers.

A U.S. aircraft inspection board of eight members, headed by Maj. Gen. K. P. McLaughlin, pointed out that the full scale prototype program was ready for service after inspection of production of the airplane to build.

Acoustic booth floor operators are being less involved in bypassing the rigger to get his direction on their purchases.

► **House**—Household appliances of plant designers at this early date were also discussed. One distributor of two-cu gas executive planes described how he had sold three private light aircraft and was even getting his last plane until January.

A USAP contract flying school program disclosed that although the school was actually scheduled to start 104 T-6 Texans, Air Force cut the number back to 120.

It was felt too, that the T-6 wasn't the most suitable plane for base training—a lighter, simpler type would be more desirable, but apparently wasn't available.

Disturbances were detected by Beverly (Bever) E. Howard's disclosure that since the Air Force put the contract training school on a cost-plus-fixed fee basis, he has had to obtain a national flight supervisor to the USAF, though previously it had purchased through normal channels.

The new police supervisors at the base render out of the aircraft price on this project. Disturbances felt that they could provide more efficient operation at a lower cost to the taxpayer, but Howard replied that Air Force believes its own purchasing power affects disadvantages going with type and available data.

► **Training**—Howard's contract calls for him to supply 475 cadets, including training, from right after contract with pre-flight, medical and basic training. Right instruction and housing and feeding.

In handling the job, his school at Spang Hall, Mountain, Ga., employs 100, including 140 faculty and 17 faculty and academic instructors. Air Force supplies the planes, tanks and guns.

At present there are nine contractors supplying base training to Air Force, and AF maintains a similar facility to provide a quick fix for new wing, cooperative efficiency and costs.

The contractor felt that they do as good a job as the Air Force in training it at the lowest cost and think they could bid over at pilot training as well.

► **New Officers**—In addition to the decision of Block of Southeast Airlines Corp., Dallas, is president, retired Brigadier General W. Richardson of the Coast Guard at Rehder Co., Lawrence, is a Sergeant of General Aircraft Supply Corp., Detroit, was named to fill John K. Linn's vice presidential post, and J. W. Thors of the Southern Magnetics division of Bendix Aviation Corp., Bellview, N.Y., was selected a vice president.

Five new directors were chosen: Carl A. Carlson, Air Associates, Inc.,

Tulacoh, N.J.; Frank L. Hime, Airwork Corp., Millville, N.J.; D. H. Howell, General Motors Corp., Malabar, Mich.; and D. S. Tilden, Eclipse-Phoenix Division of Bendix Aviation Corp., Teterboro, N.J.

Noise Killer

► **Aero** Sonic test slated in N. Y. area next month.

► **Muffler** to go on C-46's P&W R-2800 engines.

Flight demonstration of a new engine muffler designed to reduce noise of large transport aircraft is slated to be held in the New York area before aviation and city officials some time next month.

Just chances of putting the date in the openhouse dates by flying low over the heart of New York City. Sited last week due to possible rules involved.

► **C-46 Test Bed**—The muffler is to be installed on the Pratt & Whitney R-2800 engines powering a C-46 operated by Metro Air Transport, a contract carrier operating from Teterboro Air Terminal. Metro is testing the muffler in cooperation with the developer, Aero-Sonic Corp., 92 Congress St., Westfield, N.Y.

Another version of the muffler stands has been tested successfully for one channel operation on a DC-3 transport owned by Metro (Aeronautics News Sept. 17, p. 30).

In the demonstration two planes will be used, one with mufflers installed, and the other without. The demonstration flights probably will be held at Teterboro as many as five times in the New York area where they can be conducted safely.

Aero-Sonic has suggested the truck take place into the Port of New York Authority Building, as described (Aeronautics News Sept. 17, p. 30). The Port Authority officials point out a waiver in city and CAA regulations would be required to do this. This, however, doubt too would be granted when the demonstration can be conducted without any loss of time.

► **Sonic**—An expert at Metro told Aeronautics News that with mufflers installed on the center's DC-3, he has to open the outside door of his office to hear noise while he could hear it plainly with the door shut before and after was installed.

Modification to reduce length of the DC-3 muffler, which previously extended considerably beyond the exhaust pipe, have been completed and tests are progressing satisfactorily, says Metro.

If Aero-Sonic manages to turn out a production version of the prototype that meets all CAA requirements and still runs efficiently, that firm may be able to adapt the device to many of the major airline transports now flying. Some planes using P&W R-2800 engines are the Douglas DC-6, Convair 440 and 440 and the Martin 401 and 404. The output of the muffler is called D. L. LeVillage, Aero-Sonic's chief engineer. The company president is T. L. Casco. Officials of the National Advisory Committee of Aeronautics, Aeronautics Division, Bureau of Standards, Aeronautics Division and Public Affairs, Civil Aeronautics Administration, the Port of New York Authority, airline associations and other interested groups are expected to be in attendance at the demonstration.

Contract Hearings To Start in Capital

Public hearings on "Switzerland, look books, and possible fraud" in the letting of contracts at Wright Patterson Air Force Base will be held at Washington D. C. by the Senate Subcommittee on Governmental Operations on Oct. 15, 20, and 31, at a meeting to a "reasonably firm" decision of the group, headed by Sen. Lyndon Johnson.

The subcommittee has previously considered holding the hearings at Dayton.

Release will return from Texas and several other members of the subcommittee also expected to arrive in the capital from their home states for the hearings.

It isn't expected that any top Air Force sources will appear in the three day scheduled hearings, but a spokesman for the committee said that the hearings might be conducted here. What they discuss will determine when to go. Most of all, we want to determine whether the Air Force has taken proper action to eliminate its avoidable procurement practices.

30 Areas List Plant Dispersal Programs

More than 30 U. S. local industrial areas, including many important aircraft centers have started their own plant dispersal programs in response to National Security Resources Board appeals.

The board officials of planning for national industrial dispersal still remain uncertainly the same as in the original NSRB program announcement (Aeronautics News Sept. 3 p. 14). The plan still calls for the dispersal of new industry and expanding industry—not for moving established industry.

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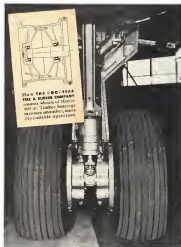
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FINANCIAL

Comparative Airline Results

(Third Quarter 1950 & 1951)

| CARRIER | GROSS OPERATING REVENUE | | NET OPERATING INCOME | | Per-Share Income |
|----------|-------------------------|----------|----------------------|---------|------------------|
| | 1951 | | 1950 | | |
| | 1951 | 1950 | 1951 | 1950 | |
| American | \$85,230 | \$75,150 | \$772 | \$698 | \$5.74(18) |
| Boeing | 5,457 | 5,285 | 155 | 84 | 74 |
| Capital | 13,774 | 8,673 | 374 | 145 | 915 |
| CAL | 8,386 | 8,275 | 306 | 306 | 186 |
| Colonial | 1,978 | 1,708 | 182 | 186(18) | 154 |
| Delta | 6,842 | 6,554 | 376 | 1,112 | 352 |
| Eastern | 22,664 | 21,577 | 324 | 5,758 | 587 |
| Norfolk | 1,465 | 14,388 | 22 | 3,078 | 2,771 |
| TWA | 45,617 | 39,814 | 350 | 3,895 | 6,870 |
| United | 36,922 | 35,299 | 383 | 5,148 | 7,981 |
| Western | 3,813 | 4,171 | 49.9 | 1,891 | 349 |

From (18) as adjusted — decrease
SOURCE: C.A.B. reports and company statements

Trunks Show Continued Strength

While airline nine-month gross is up only 36% over 1950, net incomes soar 139% during the period.

Airline earning power continues to maintain strong growth, but is beginning to show some moderation.

■ **Leverage Effect**—The leverage power at airline operations is self-evident.

While gross income for the first nine months of 1951 is up only 36% over the same 1950 period, net operating income rose by 139%.

Based on fiscal nine-month reports, even after heavy tax accruals largely taken in the third quarter, airline net income reported increases in net income ranging from 94% to more than 130% over the nine months ended Sept. 30, 1950.

Heavy tax accruals and other charges appearing in airline third-quarter reports have had a tendency to slightly distort the true character of earnings for that period. A number of carriers, in publicly reporting results, have actually presented statements for the respective nine-month period ended Sept. 30, 1951. This has made an accurate comparison of the current third quarter with the like 1950 period possible.

As a consequence, the excellent earnings of the first six months of this year, in a number of instances, combined with the operations of the third quarter, have tended to create the impression that the average gain indicated were the prevalent at recent months. Such is not the case as an

analysis of the figures quickly indicates.

To afford a fair basis representative picture of real earnings power in recent months, operations for the third quarter have been "isolated" on a separate gross revenues and net operating income before taxes. These results, with comparison for the 1950 September quarter, are presented in the accompanying table.

■ **Qualification**—A number of important qualifications temper these findings. The seasonal characteristic plays an important role in most airlines. Certain operating charges revealed in one quarter may properly belong, in part or whole, to other periods. While taxes are excluded in measuring profitability, actually they are of prime concern to management and invest-ment sources in evaluating fiscal results.

However, to indicate earning power entirely within the control of management, net operating charges before taxes is used here as a convenient guidepost.

■ **American**—Leading the industry from the standpoint of volume is gross operating revenue in American Airlines. Its earnings, however, like a number of major airlines, in its earnings which have a major impact on the results shown in the comparative net income report shown publicly.

The company revealed total gross revenues of \$150.2 million for the nine

months ended Sept. 30, 1951, up almost 41% over the same period a year ago. The third-quarter increase, however, was 77.2%. In its comparative public statement, the company indicated net operating income, before taxes, of \$15.1 million for the first nine months of 1951, a gain of 97.5% over the second 1950 figure of \$12.9 million. On an adjusted basis, however, the gain in net operating income for the third quarter of the year was only 9.6%.

Among the adjustments made by American was reinstatement of 1950 results to include the loss as the liquidation of American Overseas Airlines (\$152,000) among the charges for that period. Primarily, the loss was charged to supplies.

In coping with more conservative accounting practices among corporate managers in recent years, there has been a tendency to charge current operations rather than supplies with non-recurring items. However, by now including the extraordinary charge against last year's operating expenses, a true picture of the company's earnings power at that time is not presented. The accompanying table reveals the VO's loss in the 1950 period.

The C.A.B. division of rail rates also indicated company adjustment of 1950 earnings. Previous for income taxes for the nine months ended Sept. 30, 1950, has now been increased from \$51,400,000 to \$57,790,300.

■ **United**—In its publicly released report shows the best earnings of operations for the nine-month and third-quarter periods separately. The only carrier to show a decrease in net operating income for the current third quarter, United is believed to have been hard hit by a series of crashes which may have accelerated extraordinary charges.

■ **Western**—While Western's gross income declined during third quarter due to a 15-day strike, its net operating income was up. This income resulted primarily from the profit realized from the sale of fuel stores.

■ **Eastern**—The best showing in the third quarter belongs to Eastern. While its gross revenues for the period were up only 16.4%, its net operating income increased from \$16,300 over to \$18,300,000. The relatively low 1950 base, of course, makes for an exaggerated percentage gain. The fact remains, however, that the third quarter is undoubtedly Eastern's low point.

The poor the company experienced in the third quarter is a severely all-around period.

This demonstrates the effective work of leverage on airline earnings since the best-on-on point is passed.

—Selig Altschul

AERONAUTICAL ENGINEERING

Britain's Turboprop Flying Boat Unveiled

- First of three Princesses still lacking engines.
- And original role changed from civil to military.

(McGraw-Hill World News)

Covers, Life of Wright, England—The Princess had a coming-out party here recently, making her debut into the outside world, away from the shelter of the hanger where she was born and raised to adolescence. She's a big girl now—too big for her construction hanger.

So Saunders-Roe Ltd. moved her out of the hanger and onto the apron at the watercraft bus line East London. There she will sit until next May or so, when she is scheduled for first flight.

The Princess is the first of three being built by Saunders-Roe for the RAF's Transport Command.

She's a ten-engine turboprop flying boat of about 150 tons gross weight. And that's less the weight of many a loaded transport in British parliament and in aircraft carrier. (For war purposes it's less of her, see "Princess: Airliner or Military?" *Aeronautics* Winter 22, 1953, p. 19.)

• **No Newcomer**—The Princess is now joining an even older. The British Ministry of Supply ordered three craft for the British Overseas Airways Corp. in 1946. They were intended for non-stop service between London and New York with 107 passengers.

Lately it was decided not to try for BOAC's North Atlantic run but to run the big boats as British South American Airways routes across the South Atlantic. Thus BSA was dissolved by BOAC, and the Princess were transferred out of a job.

Saunders-Roe continued work on the craft, and the SR-1, which had been originally estimated at around \$8 million, increased with time. It's now in uncompleted around \$20 million, and work is by no means completed.)

In the meantime, management had set an, and after a brief period of rumormongering, it was official as announced that the three Princesses are being ordered to be completed and turned over to Transport Command. The heavy intention was to get the Princess out of the hanger and onto the apron.



TAIL DOWN: huge 150-ton Princess leaves her hanger on Isle of Wight, and...



NOTE UP: the engine propellers only light upon with tilt of beaching gear

equipment were to be hauled around in low-pressure surroundings.

The current expectation is that the Princess will be able to carry four complement of troops a distance of 3,500 miles, including ultraviolet for aircraft, search devices and tracking. A typical day might be to Australia in somewhat under 30 hr. Cruise speed of the big boat is about 380 mph.

• **Exhaust**—It wasn't easy to get the Princess out of the hanger and onto

the apron. In the first place, she was too tall even with part of the vertical tail still attached. In the second place, she was being in the wing direction.

So Saunders-Roe technicians pumped 3,000 gal of water into 15 tanks located on the main deck for ballasting during flight tests. These tanks were far enough aft to produce a tail-down moment around the main wheels of the beaching gear.



SIDE VIEW shows two-deck arrangement and overall size of the Princess, while...



FRONT VIEW reveals wheel layout for coupled gear. Princess turboprop engines, each...



TOP VIEW looks down on wing arrangement. Wing ends, engines will be installed later

The nose went up about 9 deg above level, and the huge craft was wheeled out of the hanger.

Then water was pumped into the bow tank until the plane regained an even keel.

After the Princess was outside the hanger, she was towed around so that when fitting is complete, she can be loaded in the manner of a boat, back wash down a slipway.

• **Next Steps**—The outer wing panels, by far the most complicated of the aircraft, have been completed. These will be attached next.

With those tasks out of the way, Saunders-Roe will install the ten Bristol Pegasus turboprop powerplants, delivered deliveries of which have been holding up the project. Only one coupled test and two single ones are currently in hand. The Princess needs three more

coupled units, plus spares for each aircraft.

Bristol Aeroplane Co. Ltd. has announced over 6,000 test hours on the Pegasus. But a lot of this considerable amount of test time, delivery delays continue to push the Princess further inland schedule.

Removal of the first Princess from the longer means that the second can take its place in the center of the assembly area. Saunders-Roe has scheduled the delivery of the three craft at six-month intervals.

• **Specifications**—The Princess has a wingspan of 279 ft, 6 in. with doors wheeled onto their place at the wingtips. Overall length is 145 ft, total height to tip of fin is 53 ft, 8 in.

The passenger, double-deck hall of the giant boat is the largest metal structure ever built for an aircraft. Some interesting statistics show that it can hold 21 tons of baggage and stowage, 22 tons of light alloy plate, 5 million rivets and 43 mi. of electric cable.

Wing area of the craft is about 5,000 sq ft. Gross weight is currently pegged at 315,000 lb., which gives a wing loading of about 63 lb./sq ft.

Two engines are arranged in four coupled pairs and two large turbo-propellers are de Havilland models of 16 ft 5 in. diameter. Fuel load is 117,450 lb. of kerosene stored in four internal tanks in the wing.

All control surfaces are operated by electro-hydraulic system.

Aero Grads Low On Salary Scale

Starting salaries for at least one group of aeronautical engineering graduates at the 1951 class are the lowest of an engineering group.

Increase is shown from the 1950 level was now believed for the area, and only about one-third that of the high cost areas.

These facts are from a survey conducted by New York University's College of Engineering and reported by Boris A. Falk, director of student personnel and admissions at the college.

Last September the College mailed questionnaires to the 370 graduates of its six divisions asking for information about the type of job, the salary, how the job was obtained, and whether or not it was satisfactory. Replies were received from 66% of the group.

Average starting salary for the class is \$381 per month compared to \$320 per month for 1950 graduates. The current trend is that starting salaries continue to rise after a slight increase in 1950 which followed almost constant levels in 1948 and 1949.

Starting salary rate was reported by the civil engineering grade. These



NEW covered gear on Cessna 140 is checked by John Geisse, designer. Note wheel at right turned at outward angle, can't turn inward.

Geisse Crosswind Gear Approved

GAA approval of the new covered landing gear developed by John H. Geisse, veteran exponent of single runway airports and wheel gears gives a further boost to this type of aircraft accessory, which eventually may become standard equipment on most aircraft with new landing gear.

While most Air Force engineers contend that the higher landing speeds of jet aircraft minimize the effect of cross winds on landings, Geisse does not agree. He sees the limits of crosswinds put an even heavier load on the gear at high landing speeds and recommends the gear as a safety factor for all landings.

► **Better Ground Control**—The Geisse gear, in its present form, is designed for a two-place Cessna 140. It weighs about eight lbs. per wheel, but production model is expected to weigh about four, and is designed for quick installation with one wrench on the sprag side, single strut landing gear on Cessna planes.

In a recent demonstration at Washington-Veteran Airport, near Washington, D. C., Geisse tested the plane in a series of violent ground circling maneuvers that showed high degree of control possible with the gear.

The Geisse device is based on the principle of a "bush-bar hinge" with the addition of a spring to pull the hinge back to closed position in order the wheel when extended form are not affecting it. This hinge arrangement means that rubber wheel can extend outward.

But another can turn inward, as necessary to arrangement of either swiveling covered gear development.

This new device considerably improves handling characteristics of a

plane as equipped on the ground, as compared to rubber gear. Geisse states: ► **Each Covered Wheel**—The inventor, who was an early advocate of rotatable aircraft and a consultant on private flying to GAA for several years, has been demonstrating his prototype gear to military and civil aviation engineers. He is looking toward use of the simple gear on Army liaison planes as the first possible production order.

GAA test pilots, getting the gear through its paces for acceptance approval, stated that it positively demonstrated the possibility of ground loops on the Cessna on which it was installed and that landings at runways of 50' long were safely accomplished.

Two important points are made possible by the covered gear," Charles



FRONT view of "bush-bar hinge" wheel design, with small spring as pivot of hinge to snap wheel back to rigid position when desired.

F. Hance, Administrator of Civil Aeronautics, (continued)

"It practically eliminates the costly damage caused by ground loops due to landings in a crosswind, where a wing tip is broken, and it makes possible the CAA's policy of building single-strip airports."

"Then the airplane operator and the frequent flyer benefit by this development, and we look forward to the time when all airplanes are equipped with this helpful device. Mr. Geisse has made a real contribution in making his gear simple and inexpensive."

Douglas Streamlines Rolling Mill Setup

SAINT MARIUS—More efficiency, better control, higher production and less injury resulted in the re-amped setup of Douglas Aircraft Co.'s plant rolls in St. Marius. And as a result, through an accident, involved in the firing of such welded pipe in the main fabricating building.

Douglas production engineers have gathered the various activities of the mill section and reorganized them into a streamlined operation. Previously, items from the 16 stages under milling reached in the main building twisting about 200 yds. to a degree as the bending's movement, then back to the main floor to the various heat treat tank, quench tank, bluffed stretch leveler and aging section.

► **Production Road**—About a dozen hole boxes were required and these cluttered the main fabricating floor. These for movement of formed sections from heat-treat to quench tank was necessary for heat control of properties, and production rate was slow.

Now, the operations are streamlined for short progress steps in one building. And production has been boosted about 3 to 4 times—with a smaller shop floor.

Strip material stock for the Yuleville are loaded directly adjacent to the machine. The formed parts come off the rolls directly onto an overhead conveyor to the degreaser and then into the adjacent draw.

► **Time-Saver**—From the draw it is but a short step to the quench tank for heat treating. Transfer of material to the quench and drawing tank, which all work about the heat-treat tank, is accomplished with an overhead crane in a hot 6 to 7 sec. for good quench timing.

Next short step is about 75 ft. double overhead to the bluffed stretch leveler, then to the nearby aging oven or straighten out of the shop before application of identification stamp, depending on the type of material.

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Made of stainless steel and available in all sizes, all metal forms, also furnished in stainless steel to 17" in diameter and other special applications. Permits easy to maintain when hose is in place.

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4391 West 24th Place, Chicago 25, Illinois

WADC Tunnels

- Six units are operating at Wright-Patterson.
- And they are available to defense contractors.

Detra-Wright-Patterson AFH has installed defense contractors that six windtunnels are at their disposal at the Wright Air Development Center.

The tunnels range from a 5 ft diameter unit, in which tests can be made up to 250 mph, ground speed at sea level conditions, to the 6 ft two-dimensional supersonic tunnel, capable of simulating its speeds up to 3,000 mph at sea level conditions.

All tunnels are available to National Military Establishment contractors who need aerodynamic data not generally known in the aviation or allied industries.

► **Free-Flt Tunnel**—A general purpose, low-speed, closed return atmospheric

unit used primarily to determine load and bleed characteristics of aircraft and missiles. Models of about 2-ft span are tested by drawing air into the chamber by use of a 2,000 hp fan.

Rooms surrounding the unit serve as a stagnation region, with temperature control maintained by forced air leakage into the room from outside.

► **Tunnel also is used for testing** airfoil-shaped surfaces, angle of attack indicators and other research probing devices.

► **Twenty-Ft. Tunnel**—This closed return atmospheric tunnel is used primarily on large scale models of missiles and aircraft or components, ranging up to 14-ft wing span.

Tests up to air speeds of 410 mph, may be obtained. Forward models, such as inlet and exhaust installations of aircraft, also can be tested in this tunnel.

Unit utilizes an overhead mechanical belt and support system. The basic air transmission through a divergent expansion system to a thrust wall, from which the air discharges freely.



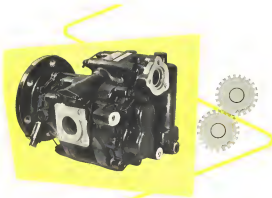
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VIP VERSION OF HANDELY PAGE HASTINGS

A quartet of these special military transports is being built by Handley Page Ltd. for carriage of VIPs by RAF Transport Command. Based on the standard Hastings II, the four are equipped with permanent

special interior fittings, including oil firing seats. Each has 3,500-cu-m capacity cargo at 240 mph on low take-off thrust power. Fast and was delivered recently after 7,000-mi. flight from Boston to the New York.



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May we tell you more about the Thompson Gear Pump . . . or any other pumps in the Thompson line?



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36 HARTMAN RELAYS PROTECT BOEING'S B-47 BOMBER



J18 GC-18 36-Relay
Ground Panel,
From Century-Jet-Air-Mob
Production Industries, Inc.

Mindful of the lightweight efficiency and trouble-free performance of Hartman remote control units and other devices in military and civil aircraft, Jack A. Hartman called on Hartman to supply vital

relays for the J18 GC-18 control panel installed in the bomber.

Each of the aircraft's six generators is protected and regulated by an individual GC-18 control panel equipped with five Hartman relay

(1) **Overvoltage/Voltage and Reverse-Current Relay**—Converts generator to bus when generator voltage exceeds heavy voltage; disconnects generator from bus upon reversal of current.

(2) **Ground Fault Relay**—Senses ground fault, when fault exceeds set value, relay de-energizes generator.

(3) **Overvoltage Selector Relay**—Senses load current to direct generator producing overvoltage and automatically act as overvoltage relay to trip at lower voltage than other bus relays.

(4) **Expulsion Relay**—Disconnects regulator supplying current from generator bus to avoid pulling open voltage down when generator is disengaged.

(5) **Overvoltage Relay**—Senses overvoltage and cuts out generator. Relay has reverse time characteristic to prevent nuisance relay.

(6) **Generator and Generator Relay (Not Shown)**—Located on busbar near main bus, 40 of these contact units, each controlled by a GC-18 panel, connect and disconnect generators from bus during load testing and generator stop conditions.

Typical of Hartman design and manufacture, relays in the B-47 are just a few of the many devices engineered for the aircraft industry. Whenever your problem involves electronic relays, call on Hartman.

where it will receive prompt attention . . . where it will be analyzed and engineered with an efficiency that comes from nearly half a century of specialization.

the Hartman Electrical Mfg. Co.
MANSFIELD, OHIO

and currents are transferred to coils and thence to recording equipment.

There is 40,000 hp. available for this tunnel. Air exchange is obtained in order to maintain constant tunnel temperature.

Further plans call for increasing availability of unit to speeds approaching Mach 0.9.

Test-Fit Tunnel—This is a tunnel section with 10-ft test section and is powered by two 20,000 hp. motors which allow "choking" velocities over a pressure range from 4 to nearly two atmospheres.

In manipulation of the test section "scale" it is possible to extend tubing range to gas velocities into the low supersonic range, reaching up to Mach 0.55.

Models up to 4 ft long open can be tested, using drag-mounted strain gauge, internal balance section in obtaining a mechanical balance on well-mounted installations.

6" X 6" Tunnel—This is a two-dimensional supersonic facility with replaceable nozzle inserts to test at Mach 0.75, 1.00 and 1.25, over a pressure level range of from one-quarter to two atmospheres.

Additional inserts are on order to extend both ends of range. A flexible nozzle which will allow continuous variation in Mach number to about 1.0 will be available later.

Air stream is generated by a 12-stage axial flow compressor driven by a 1,500 hp motor. Both Schenck (qualitative) and interferometer (quantitative) methods are available to study shock wave formations about models at these supersonic velocities.

2" X 2" Tunnel—This is similar to the 6" X 6" unit, except that its greater size permits more intricate developments, work because it can handle larger models.

Facilities at present lay out set of static models for Mach 2.5, but additional nozzle blocks are being built which will allow velocities of Mach 1.9, 2.0 and 2.5 conditions.

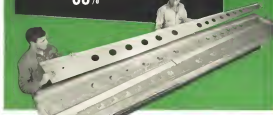
At present, only Schenck photographs is being used for flow analysis.

Vertical Tunnel—This facility has a 12 ft diameter vertical test section, with air generated by a fan at top of tunnel and circulated around the outside of the test section shell to the bottom of tunnel. Air then passes up through a down-catch straightener before entering test section.

This unit is used primarily to test recovery characteristics of spinning models constructed dynamically similar to prototype models or sections. Models are taken of diameter of the free field, spinning models and rotary mode of rotation characteristics. Not unlike lifting models.

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Fastener Problem of the Month

DECEMBER, 1951



PROBLEM: The machine guns on the USAF F-86 Sabrejet are mounted in a "closed out" position. The mounting brackets are in the form of tubular fittings to which the guns were to be attached with bolts and AN151-624 hexagon nuts. Because these nuts had to be installed from inside the fuselage and were located deep within the fittings, the assembly job presented obvious difficulties. Furthermore, under cockpit conditions the bolts and nuts were required to be checked by an inspecting gunsmith, and analyses revealed that with the type of fasteners originally considered, the maintenance operation would require 14 man hours.



SOLUTION: Since there was not sufficient clearance on the mount gun structure to accommodate either nuts, spline nuts, or other standard types of self-locking nuts, E. A. A. engineers in cooperation with ESNA, recognized the problem by designing NUT TYPE S7571-004. A lug, capable of withstanding 410 inch pounds, was made in an integral part of the nut. It acts as a wrench against the side of the structure. This lug is located above the center of the nut to overcome "choking" up the locking action. To take care of an increase in bolt loading the nut was designed with a minimum breaking strength of 10,000 lbs. This ESNA-developed nut cuts reworking time from 14 man hours to 15 minutes and is in self-locking repeat assembly form.



ESNA TYPE S7571-004

DO YOU HAVE: a critical, time consuming assembly and maintenance fastening problem which might be solved with a self-locking Elastic Stop Nut? For information on this and other ESNA vibration proof fasteners consult your local ESNA distributor, or write Elastic Stop Nut Corporation of America, 1190 Vauxhall Road, Union, N. J.

AF Medicos Bring Space Down to Earth

Man has already flown under the conditions existing in outer space, says Dr. Helmut Stieghold of the Air Force School of Aviation Medicine. It is not necessary to fly at astronomical heights to find these conditions, nor is it necessary to approach the moon in order to reach a region of zero gravity.

Dr. Stieghold's views are in a paper published with data associated with Hideo Hideo, Fritz Huber, and Kenneth J. K. Bauman—in the current issue of the *Journal of Aviation Medicine*. The article, "Where Does Space Begin?" establishes a new and different set of definitions for space.

► **Functional Zero-Grav.** says Dr. Stieghold, is a functional area which exists whenever certain conditions are obtained. And zero gravity is possible anywhere above the earth's surface.

The four scenarios divide the atmosphere's properties into four categories:

- **Environment:** comfortable for man (including air and climate)
- **Exhibition of cosmic rays and radiation:** from the sun, and meteor
- **Life:** for aircraft.

The first of these properties disappears about 10 miles up. At this altitude, man in an unpressurized environment has about 15 sec to act before he loses consciousness. And he has no more air, regardless of how much further he goes into space. At an altitude of 124 mi., the body flushes out if the body is exposed to the low ambient pressure. They will also boil at any higher level.

► **Reflection:** The second category of properties, that of blindness, shows its limits within the stratosphere. At about 15 mi. above the earth, cosmic particles are already felt with nearly their full effect and at 18 mi., ultraviolet and other solar radiation exert its full force. The malignant power that they show at sea level.

They do little more damage at any greater distance from the earth. Man can begin to come within bounds at about 75 mi. and continue to be trouble-makers on out to the stars.

So from a functional point of view, space begins about 10 mi. up and at 75 mi. it very nearly abounds.

Zero gravity is not a condition of the boundary between the gravitational field of the earth and any other heavenly body.

Instead, it occurs at the mark of complex relationships between gravity, inertia, thrust, lift and drag. Even within the earth's atmosphere, weightlessness has been experienced by

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"...and still Champion!"

This is a plane about as unique—specifically, a Chance Vought F4U Corsair fighter bomber affectionately dubbed "Old Number 24."

When she was shiny and new, she went into combat with a Marine fighter squadron flying against the enemy in Okinawa, near the end of World War II.

By all rights, Number 24's duty should have come to a close there when victory came. But instead she was shipped back to the U. S. and put in "mothballs."

When war broke in Korea, she shed her cocoon and answered the call again. And by chance she was picked to serve aboard a carrier with her old squadron.

One day last winter she headed off the carrier for the mainland of Korea, as usual—only this trip marked her 1500th mission.

By and large it was a fairly routine day—her

napalm bombs set a warehouse flaming at Asong-on. Her 50-caliber strafed enemy troops dug in on a hill at Ojeon . . . her bombs and rockets demolished three more warehouses at Bujon . . . and she topped off her 1500th mission by strafing an enemy supply line along a highway.

During "Old Number 24" got hit a few times, as she had before, but overnight she was patched up, ready to go again.

There is no record to this story except that it shows, better than anything else, that nothing can beat a sound design and good workmanship.

"Old Number 24," with her long service and versatility, is typical of the Corsair—which has followed up a brilliant record in World War II with an equally impressive performance under entirely new and extremely difficult conditions in Korea.

Chance Vought Aircraft • DALLAS, TEXAS
ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION

plete for intervals up to 45 sec.
So Dr. Stimpf and his associates have concluded that there is no well defined borderline between the stress phase and rest. And the implication of that conclusion is that man is not living in space, or under conditions which are the same as those expected to be encountered on interplanetary trips.

Device Takes Notes On Missile Tests

A miniature recording oscillograph, developed specifically for a guided missile test program, has been added to the family of oscillographs built by General Engineering Corp., 161 N. Berns-Madison Villa, Pasadena 5, Calif.

This new unit measures only 7 in. square by 8 in. long, and weighs 110 lb. fully loaded with film and its complete set of recording instruments. It's made of two ribbed, stress-relieved aluminum castings which clamp together on a heavy casting plate.

One section is the response, and contains recording material and the read plate record drive system, including the motor.

The other section is the oscillograph and contains the galvanometer disk and galvanometers, light source, optical system, electrical input connections, and the unit's damping resistor assemblies.

The present recording medium is Kodak Vershicon film in 36-in. length and 1/8 in. wide. Standard Kodak speeds are used, making a simple and requires no complex developing.

Record drive system is completely gear-driven and will provide pin-point record speed during acceleration as high as 30G in any direction. Nominal record speed is one in. per sec., but it can be changed if desired.

New Attack Opens on Engineer Shortage

The campaign is being stepped up to help the engineering manpower shortage.

The Engineering Manpower Commission of the Engineers Joint Council is dispatching more than 400 local representatives in the 48 states and Canada to urge on the people the seriousness of this shortage. The campaign will be aimed at getting federal government, industrial and military usage of engineers, increasing the student enrollment in engineering schools and getting more responsibility quickly based consideration of the problem.

Representatives include top educators, scientists, industrialists, engineering consultants and privately employed engineers.

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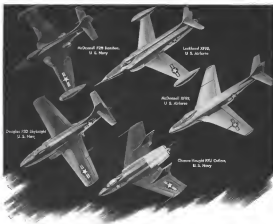
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In addition to the already famous J-4, Westinghouse research and engineering skill has developed the J-46 and the J-40, big brother of the Westinghouse jet engine family and the most powerful turbojet engine known to be in production anywhere.

Look for Westinghouse to continue to power the outstanding military assets of the future. Look to Westinghouse for constant progress in the development of more powerful and more reliable turbojet engines.

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NAA Reveals Improved Test Methods



COMPLEX wiring such as the electrical harness for F-16 jets are tested on



CONTINUITY CHECKING with each post representing an electrical circuit, while



LARGE CHECKER at side of plane tests harness as they are being installed

- Maze of wiring checked on new contact post panels.
- Refrigerator sniffer finds flaws in fuel lines.

By Irving Stone

Los Angeles—Tracking operational requirements of today's test and high-flying jets call for new and precise production test checks.

At North American Aviation, Inc., these production testing techniques cover all types of aircraft installations and range from simple inspections to procedures involving the use of equipment costing as much as \$40,000.

This may mean expensive test equipment and while for checking, but NAA's production trouble-shooting says they soon save the equipment cost many times over in response and material expenditures.

► **House-Insured**—Much of the testing equipment was designed and developed in NAA's production-engineering setup. In some instances those house-made checks also are elaborate because they are specially tailored for a specific production-line headache, but NAA technicians are convinced they have justified themselves.

One example of house production details have involved in the case of wiring provided to a present-day fighter—F-160 ft of the "highly" as against a mere 500 ft in World War II fighters on NAA engineers.

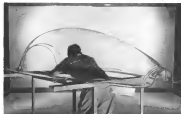
It wasn't feasible to follow the size of records with the obsolete light, so NAA engineers developed special panels for quick, on-plant testing all along the line—specifically from the first use of the harness bundle to the complete installation in the shop.

The new panels are constructed total-group continuous checkers devised with a white plastic base studded with rows of contact posts. Above each post is a translucent circular arm with a marker corresponding to the particular circuit, and under the circle is a light.

► **Speed Its Complexity**—These panels are made in various increments with just a few circuits others with as many as 200-400. But checking with this device is simple, regardless of the number of circuits. The inspector quickly runs a probe along the posts



CANOPTES are tested under pressure compatible to light on this frame, and



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Continued from p. 40)
 used in the Air Force test pilot at the plant.

Marv's boss, NAA, performs the visual check. A test fixture supports the transparent carbon together with a plate for the inspector to sit in (approximately the location of the cockpit pilot in the cockpit). The check-light is a large white, pivoted panel mounted on wheels. It is square black grid lines.

From the inside of this cockpit, the observer checks distortion of the grid lines. If the observer is satisfied, the design of the observer's cockpit and

screens the grid apparatus for rubs once. Obviously, different pilots will experience viewing distortion, depending upon their height above the seat. In the case of compliance, the carbon screen will show that the specified standard is met.

■ **Stiffing for tests**—It is an expensive matter to fit a fuel cell tank to deliver after this vision is checked. NAA in question doesn't scratch with their work, says with no check, because it must be accurate enough to show up minute leaks. Some of this small scrap was increased from installation through stress and required considerable work to correct the condition.

For better leakage control, NAA switched to a detector originally designed by General Electric Co. for checking refrigeration equipment. This "sniffer" will pick up an exceedingly small leak and is so effective that NAA already has more of them in service. These cost about \$545 each, NAA says, but their cost was quickly balanced by smaller savings.

The detector is used on self-heating and bubble-type cells, for leaks in the bag, vent, entrance and flow through, and stretch lines.

For an air source, the NAA doing good Helmerite is used, a smoldering disk and specific temperature controlling the pressure drop. Before the Helmerite is looked up, a compressed of carbon tetrachloride is poured in. Evaporation is rapid and the air and gas mixture is fed to the test equipment. The cell is maintained at a specific pressure for 15 min., and at the end of this period the monitoring needle should descend to a complete circle on the disk if the cell is good.

If a pressure drop shows, the GE sniffer is used. Action of the gas mixture from the fuel cell is drawn across a transducer wire in blow-off position and the unit is so sensitive, says NAA, that it will detect a leak as small as 1/1000 in. in a year.

There are but a few procedures in NAA's extensive check scheme. With present design trends pointing toward lightweight for extreme accuracy and portability, pre-testing will in time cut even more and make production testing an inseparable phase of mass production.

Do Planes Really Cost More Today?

An effective and revealing picture of cost composition of today's and 1944-45 similar type aircraft is included in a new Lockheed Aircraft Corp. report with 24,596 examples.

The unusual study, answering questions that have been posed throughout the industry and among investors, points out that that would be only 5% cost difference between today's 546 high performance and in World War II aircraft. If production rates and other factors were considered.

► Cost Factors—Lockhead compares the F-105 with the P-51, placing the cost of the P-51 at about \$180,000 as against a \$170,000 average figure for the P-51 that has produced. Acceleration of production to the P-51 rate would from the P-51 figure to \$170,000, says Lockheed, and adjustment for dollar depreciation would drop the cost to \$107,000—a 5% difference.

In addition to reduced volume and

higher material costs and wages, this, it says, and other other cost increases (increasingly complex designing and tooling requirements, larger machines for fabrication of larger parts, more efficient assembly procedures, meeting from greater cost of aircraft equipment).

Today's 70,000-lb. P-51 is supposed to perform a mission comparable to that of the 12,500-lb. 1940 Hudson bomber, the P-51 has 5,755 sq ft of delta wave component, compared to 816 sq ft in the 1940 Vought patrol plane.

► Typical Plane—Another enlightening comparison shows that the first Super Mustang P-51 cost \$612,000, as against \$5,001,000 for the contemporary F-100. And, price of the F-100 is not a copy of the P-51's airframe cost.

Under economies of mass production the report indicates that a "bomber" plane could be priced at \$500,000 for the 100-575,000 for 200-557,500 for 300 and \$445,000 for 1,000.



VIR pressure from oil through tube to center head on the new auto-color outfit.

Pressure Oiler Cuts Router Manhours

Los Angeles has the operation and maintenance of the router, from simple, pressure-oiler attachment for a 10-hk router. Texas Engineering & Manufacturing Co., Inc. reports that this machine attachment has cut router manhours by about 12 1/2% and boosted router life 100%.

Developed by Thomas Corp. W. Helmerite, the new addition gives cleaner cuts and leaves burning less. A one-cut router with an adjustable valve is connected to a port of routing pushing to the router head. Port area is supplied by a compressed air line hooked to a regulator and an auto-matic relief valve. Cost is \$1,000 for the device including installation and labor—11 weeks \$15.

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Announcing the **CONTINENTAL- TURBOMECA** Family of GAS TURBINE ENGINES



Continental Motors, pioneer in power jet propulsion and military aircraft, announced another major pioneering step—the purchase of the exclusive United States manufacturing rights to a series of gas turbine models developed by the French Turbomeca, under license of the French Air Ministry.

The agreement with Turbomeca, following months of technical work, testing and negotiation, in this country and in France, brings to this United States a far broader and more diversified line of turbines in the 500-hp, 1,000-hp range than has been available heretofore. Characteristics favoring their widespread use include:

Small size and low weight in relation to power.

Adaptability to all fuels, including those of low grade.

Long life expectancy due to simplicity of design.

Wide use of critically scarce materials in their construction.

A high degree of parts interchangeability among various models.

Versatility, should power be delivered in any of four different ways.

Continental Motors uses the Continental-Turbomeca family of engines in engine-mounting, rather than duplicating power plants at conventional design. The four basic models and their variations are expected to find wide acceptance, not only in military applications, but in many commercial fields as well.

The Continental-Turbomeca family of gas turbines has been successfully tested in actual use. Plans for development work will be announced. Meanwhile, inquiries are welcomed. Write: Continental Motors Corporation, 1700 Algonquin Avenue, Detroit 14, Michigan—Attention: Mr. Whitney Collins.



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Renegotiation Board Ready for Business

The U.S. defense industry is watching closely the new independent Renegotiation Board, which is now organizing to go into business.

It will for some time, policy, may also take over the negotiation and renegotiation. One of the major questions for the Board, what contracts are to be subject to renegotiation. The law gives wide latitude, providing that not only military contracts, but also any contracts relating to the defense effort be open to reconsideration to scale down profits.

The four Board members named so far are:

John T. Koshig, chairman. Former Assistant Secretary of Navy, he was proposed by the Navy.

Frank Roberts, former head of the old Military Renegotiation Policy and Review Board, recommended by the Air Force.

John Hubbard, Jr., former counsel of War Assets Administration, later special assistant to Gen. Lamm, General Services Administration.

Lawrence B. Heston, former chairman of the Contract Appeals Board of General Services Administration, on which he served for more than five years.

It is the Army's prerogative to propose the fifth member, not yet announced.

Australia to Make Avon Jet Engines

(McGraw-Hill World News)

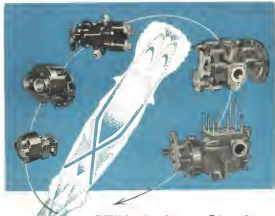
Melbourne—North American Sabre fighters and English Electric Canberra bombers to be made and assembled in Australia will be powered by Australian-built Avon jet engines, which the government will build at Comstock Aircraft Corp.'s plant, Fishermans Bend, Victoria.

The plant has already started to tool up for output of the Avon jet engines. And it is further hoped that a second plant in New South Wales may later be built there.

The Sabre and Canberra are expected to start coming off the lines near the end of next year.

Recondition B-29s

Lockheed Aircraft Service, Inc., has been awarded a \$1 million-plus contract to recondition 10 reconditioned number of Boeing B-29 Superfortresses, and prepare the planes for flight to Lockheed Aircraft Corp.'s overhaul facilities at Marietta, Ga.



EVERY American Jet engine flying today is equipped with PESCO Fuel Pumps

Ever since the emergency call came in 1943 for a failure-proof fuel pump that would stand up and deliver fuel to jet engines under conditions never before encountered, Pesco has proved the industry up to the development of high pressure fuel pumps.

Pesco designed and built the first fuel pump for the first American-built jet engine, and since then new models have come from Pesco engineering laboratories in rapid succession to meet the fast-changing and exacting demands of the military.

Today, every American jet engine in the air is equipped with Pesco fuel pumps. A few representative models are shown above. They range from the first simple, single element pump that produced 275 gph at 100 psi, to today's double element (main and emergency pump) in a single housing pump that delivers nearly 2000 gph at 1300 psi.

Setting the pace for jet engine fuel pump development is only one of Pesco's important contributions to safer, faster, more dependable aircraft. It is experience that can be of real help to you.

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C-119C WING SECTION, weighing 2,300 lbs. with engine nacelles attached, is lifted off its assembly jig table in crane and

The Mating of K-F's First C-119 Packet

• Willow Run moving along on Fairchild transport.

• But huge plant is still making 1,000 cars daily.

Here, Kearsney is building cargo ships for defense—but this time the ships bear wings, the nacelles and nacelles are a lot different. The plants together, shows a dramatic moment at the Kearsney Willow Run plant, where the company is preparing for volume output of the Fairchild-designed C-119C Packet. Pictured is mating of complex wing center section and fuselage of K-F's No. 1 Packet.

As yet, K-F is still producing autos at the huge facility at the rate of 1,000 cars a day, but plans next year to build on a second cargo plane assignment—the Chase C-119A Avenger.

Other K-F plants are building Wright B-100 aircraft engines (Dodge and Chrysler), General Motors V-type engines (Hudson), a factory at Redwood, Calif., is being prepared to make Boeing B-52A jet bomber parts.

In all, the company has 7,105,000 sq. ft. of manufacturing space working for defense and about 8,000 workers engaged on various projects. Expansion is expected to climb to 20,000 sq. ft. in 1960, and to over 25,000 within a year.

Some 2,000 outside firms are handling K-F contracts on a prime and sub-contractor basis.



MANUFACTURED into position above its corresponding fuselage, they joined



OPTO NO. 1 AIRPLANE and section. Forward cabin has not yet been attached

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OUR EXPANDING INDUSTRY

Atwood Corp., Milford, N. J., has doubled its production of Turb & Whitney aircraft engines in the past six months and is pouring Plants 1 and 2 to create additional working area. A new suspension bracket has been retooled and a second Schenck non-proven installed.

Alison Division of General Motors, Indianapolis, will build test engine test stands, replacing those destroyed in an explosion last summer, will also put up a 125,000 sq ft building for fabrication and assembly of experimental engines.

American Standard Products Co., Hartford, Conn., plans to build a 150,000 sq ft aircraft engine parts plant.

Coleman Motors Corp., Littleton, Colo., has deferred the first of a \$9.5 million USAF order for B-36 towing tractors. Schedule call for delivery of 30 units in November, 48 in December, and 50 a month until completion of the order. The firm expects 100 and a building a 50x250-ft addition to its plant.

Consolidated Vultee Aircraft Corp., San Diego, Calif., is having Canadian and British layout designers in order to meet production demands. At Ft. Worth, engineering personnel are now working on a new \$600,000 test laboratory with equipment in the 45,000 sq ft unit expected to be installed this year.

Fordice Race Gear & Machine Corp., Chicago, building has gone to \$25 million. Aircraft gear no more than half the firm's total output.

International Mfg. Co., Garland, Tex., has found Ready (Tex.) Airport, requiring 130,000 sq ft of floor space. The firm makes parts for Corvair, Vauxhall, Buick and Martin, expects to have an additional 200-1,000 workers in the Ready facility.

Iron Phoenix Mfg. Co., Portland, Ore., has secured a large contract for electronic devices from Hughes Aircraft Co., anticipating increase in its working force.

Lucasme Nightingale Corp., Garland, Tex., has secured a letter of intent from Convair-Ft. Worth to build 8-50 add-on. Lucasme now is producing 8-50 elevators and door assemblies for Convair.

ENGINEERS NOTEBOOK

Photo Courtesy of Graham & White Laboratory



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An ideal arrangement for coupling an integral valve in 24-pass duct of the Douglas C-124 Globemaster II is achieved with a standard Marmar V-Band Coupling and integral welded flange. This V-Band Coupling and integral welded flange is but one example of many diversified applications where standard Marmar couplings and flanges provide the right combination of strength, light weight and positive seal, plus production and maintenance advantages of the patented "Quick Coupler" tool.

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EQUIPMENT

Revamped NWA Maps Maintenance Gains

• And carrier now plans to stick with its 2-0-2s.

• Study of crashes clears the plane, officials say.

By George L. Christon

St. Paul-Northeast Airlines plans to hold on to its 12 remaining Martin 2-0-2s, now serving on the domestic route through a lease arrangement with Transwestern Air Lines.

The carrier had sold eight of its fleet of 25-five to California Coastal Airways and three to Transwestern Air Lines—after the series of crashes. But a study of the accidents and Trans World Airlines' successful experience with the 2-0-2s (Aviation Week/Digest 1, p. 51) have convinced the carrier that the Martin is a good airplane.

NWA pilots refused to fly the rest of the fleet (Aviation Week/Digest 10, p. 12) was instrumental in changing the line to sell the fleet. Now North

west apparently expects the pilots to reverse their stand.

•Crash Study—NWA's executive vice president, William S. Mackay, said a detailed study of each 2-0-2 crash had failed to discover any correlation between the aircraft and the accident, except for the wing spar failure at Wenatchee, Wash. That was the same spar Mackay used for the latest decision to return the fleet to the operating fleet.

The longer series of crashes resulted in a far-reaching reorganization of NWA's operations and maintenance departments. A recent visit to the airline's regional headquarters gave four hard evidence of the working that is nothing an apparent record of clear, efficient maintenance, straightforward flight operations and on-time schedules.

Don D. Benson, manager of aircraft engineering, reviewed the latest studies in Northeast's engineering department for Aviation Week.

•Hired Aid—NWA intends to make a fleetwide evaluation of Boeing's modified design. That, in its first Boeing Supermarket (Aviation Week 10, p. 14).

The decision was reached after more than three months and some 2,000 h of exhaustive service testing. Here is NWA's experience with the



REGULAIR 184298 checks operation of DC-4 turbo burner system. One of the lighter burner (left) does not go on, according to test instructions.

•No maintenance. Although the device was checked at regular intervals, it required no maintenance, according to Benson. Not a single part was changed during the entire evaluation program.

•Safe, short stops. Several landings made in as short as 10 min indicated that the plane, climbing with full thrust, compared favorably with landings made in dry, concrete runways under ideal conditions without it. The plane arrived with stopped rotors 50-200 ft of the CAA restricted field length for dry runways, Benson said. It could be towed. Although two-thirds of the tests occurred from NWA airports during the evaluation test period were pulled for flat spots, not a single test was removed for this reason from the 11 test program. The sound of the 14 test used on the runway indicated an average life of slightly under 400 hr, somewhat less than wear and not a single abnormal or excessive. And no approach, working was evident.

The burner got hot but, but ran smooth in operation, satisfactorily.

The other three tests for the flying weight in it, about 110 lb, also were 30 min before to start. Benson estimated the cost at \$3,100 per test plus \$200 for installation.

Conclude, the pilots saw down the rest of it. Benson hopes this future will soon be obtained.

•Vapor Blast Benefits—Northeast one of the first airlines to purchase one. Vapor Blast, a liquid burning process, finally that it does a fine job,

according to G. E. Magnuson, assistant manager, maintenance division.

Problems blades that come in to the prop shop in involved in, cleaned and made as good as new. Then even the Vapor Blast treatment. This three-step process hand buffing and polishing and goes in, instructing, pay rate fairly to aluminum blades. Magnuson says it is completely stress free on the blades.

It also, it takes an ideal surface for turbine flow sheet application. Also, blade scale not better on blades that have been Vapor Blast, resulting in less leakage turbine.

Free, continuous burning of steel engine, turbine blades has been characterized in form of the liquid burning process, due to an automatic machine. The operation is specific and produces extremely uniform ring-welding surfaces inside the cylinder.

Vapor Blast is used to advantage as a rule, results of engine inspections, such as, in, and engine tubes and joints pass, to remove corrosion. It also is good for preparing parts for plating.

•Tailhook Landing. NWA is probably the only airline in the world that has an established tailhook landing procedure, for turbine landing gear actually pulled out in an operation named.

This is a result of a 2-0-2 coming in to land. A Boeing came in, up with nose gear jammed in the air. The captain asked advice of lead engineer.

The airline's engineers figured that

the plane, with excellent CG characteristics, could make a tail-down landing without undue hazard to passengers and crew. The land was shifted forward to the maximum permissible limits.

The pilot made two passes at the field. On the third pass, he actually touched down, the nose gear with power on. The plane left no good but he chopped everything and held the tail on the ground.

The general verdict was to encourage the plane's stable landing characteristics, design to structure lightweight tail-down landing procedures were

established for the 3-63 and DC-4, and reflected in the operator manual. Since its establishment, number 3-63 and a DC-4 have been landed according to the plan, with the same success.

► **Engine Concerns**—NWA is going into an extensive two-day conversion of its 63 B-160 Pratt & Whitney Major, according to G. R. Lock, operations, general engineering.

P&W will supply the kits, starting in March, 1955, for phase one. This consists of reworking the engines from model T38-9C to B-4950 B-6 (for use with 106-115 octane fuel) and the B-7 (for use with 109-130 octane).

This engine conversion changes all parts in the engine except the cylinders, ring and piston cases. It includes installation of low friction ignition systems (which runs four miles at the current seven magnum).

Second phase, due to start late in 1955, involves replacing the cylinders with newly designed units having an appreciable greater cooling area around the exhaust valve (engine will increase the temperature 20-25). This requires a new exhaust system. There is a big question—what is going to manufacture it?

Benson said that P&W wants Northwest to have their made and to sign a waiver relieving P&W of any responsibility. NWA does not wish such terms, Benson asserted.

Northwest hopes the modification will give up to 1400 hp per engine for cruise instead of the current 1175 hp. NWA also looks for greater reliability and an overhaul time greater than the current 900 hr.

► **Other Engine Data**—Benson said NWA is trying to push spark advance up from 28 to 25 deg. below top dead center. Purpose is to obtain greater fuel economy, as *The American World* (New York) has done. November 1954, p. 57, and lower exhaust temperatures. The latter will result in greatly improved turbocharger design.

NWA is happy with flooded rocker boxes. Its engineers said "you could still smell the fuel wadder at overhaul" before they were all covered with coke.

The combination of NWA's exhaust valve guides and T. P. M. exhaust valves has cut unscheduled cylinder removal rate from 215 per month to about 20.

Continued to the practice of some other Shortline operators, Northwest does not condense weekly engine oil but on public protest. The reason is working hard to eliminate the necessity by changing the main scavenger pump, supporting the clogged exhaust box of fuel and checking for clogged tappet drive passages.

► **Wing Improvements**—The wing is going to have turbochargers overhauled ground from the current "twice over 500 hr. with inspections every 85 hr." and Benson. NWA is conducting the first commercial service test of the dual turbocharger combination.

In this configuration, buckets are out in pairs and attached to the fuselage where one with "Christmas Tree" attachments. At first, single buckets were tried, but there was a problem of making the "Christmas Tree" small enough. This was solved by making the buckets in pairs. Advantage:

- Stronger bucket material may be used, since welding is eliminated.
- Changing buckets as pairs is now

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The largest city in Canada—and still rapidly growing—is Montreal. For centuries the St. Lawrence River has been its main highway. But today the fully equipped airfield at nearby Dorval, a Montreal's most modern gateway to all the rest of the world.

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CAA Montreal Airport and throughout Canada the network of Esso Aviation Products is frequent (at left).



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possible in event of failure, instead of changing the entire wheel assembly.

- **Effective Anti-Ice—Northwest**, operating through about as rugged winter weather as we have in the country, vouchers for this method of attaching its planes.

Spray them with a solution of 50% propylene or ethylene glycol and 10% water, using an infrared sprayer. Moisture is non-refractive, so when wet, metal, can become and is not noticeably expensive. Not only is the fluid a good anti-ice while the step is on the ground, but it also, helps keep the plane clear all air during and after takeoff.

A Boeing report shows 15 gal of the mixture.

► **Heater—Tumble-Northeast** has installed and installed an automatic control troubleshooting panel for cabin heaters on its fleet of 11 DC-10 (see p. 32).

► **It includes seven lights**, used in sequence. If an over light does not go on, the panel indicates that trouble exists. The over light is on the left. Since each light refers to a particular circuit in the heater system, the panel function is quickly diagnosed. The seven lights are: red, red, red, red, red, red, red.

► **Power to heater control circuit** (green light).

► **Over temperature switch operation** (green light).

► **Warning to run switch action** (green light).

- **High temperature heat switch** (red light).
- **Heat signal amplifier operation** (amber light).
- **Control relay functioning** (white light).
- **Ground power control operation** (blue light).

The panel, located in the cockpit of the aircraft directly behind the pilot, even works into a troubleshooting listing of three components: 1. E. Coates, supervisor, automatic engineering. It is particularly valuable when trouble occurs at line stations, where the rest of the panel is used.

► **NACA** long-term decrease of its winter routes, Northwest is the only airline to run wing tests. And it has been doing a lot of work along this line for the NACA, Boeing and

One instrument used in a rotating disc on the center. The unit consists of an arm projecting from the fuselage at the end of which a slow, rotating wheel does a full revolution into the center, then, returning to the edge of the disc starts a flashing arm, which controls the thickness on photographic film. As the disc continues to rotate, a scanner removes the ice and removes the film all over again.

Boeing and that are new type ice rate meters had been installed on NWays DC-10s in the Coast two planes and four on domestic ships. The instrument measures the ice



C&S COCKPIT SPEAKER

New, rugged speaker is now available above the captain's seat in a C&S 40 Southern Communication. The speaker, recently approved by the CAA, according to C&S weighs only 2 lb., measures 5 1/2 x 2 1/2 in., and has a 2 1/2 in. diameter

power output. The two Jensen speakers has a range of 250 to 6,000 cps. They will give the crew better sound in discussing need for warning beacons. Engineers will be pleased, however, to stand by equipment in case of speaker amplifier failure.

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FOR FIRE WARNING, DE-ICE HEATERS
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The new wiring, thermal element now used in Wilcolator thermal switches is an entirely new design advancement in thermal design.

With manually closed contacts the contact pressure effectively increases right up to the instant the switch opens and opens the circuit. When contacts are manually again, the blade delays away from the stationary contact until the manual is released and then the circuit.

The provides more positive snap action and the added movement that vibration in which will not accidentally open as does the manual. This snap action, manual blades gradually reduce their contact pressure to zero when contacts are manually closed, and defers toward the stationary contact when contacts are manually open.

Better sensitivity is obtained with Wilcolator thermal switches because with their open construction the thermal element is in direct contact with the ambient temperature. Wilcolator thermal switches meet all standard and dual use requirements.

Anytime a standard, because each unit is factory calibrated and adjusted to required operating temperature.

Small, rugged, and light, Wilcolator thermal switches weigh less than 2 ounces. Overall size: 2 1/2" x 1 1/2" x 1 1/2".

OTHER WILCOLATOR FEATURES INCLUDE:

• Positive Return (Automatic) • Time Delay Relay • Safe Of Use For Dismount • Circuit Breaker.

THE WILCOLATOR COMPANY
ELIZABETH, NEW JERSEY

Parker makes all these

AN 8227 and AN 8330 Hydraulic

- RINGS

5427 and 5430 High-Quality Industrial

- RINGS

AT-834 Pool Resistant

- RINGS

AMS 7370 Pool Service

- RINGS

AMS 7274 Oil Service

- RINGS

AN 8250 Fitting Gaskets

- RINGS

Special Service

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- strictest quality-control programs
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Popularly used O-Rings stocked by authorized distributors in principal cities. Special Service O-Rings of tested and approved components supplied on order. Write now for new Parker Catalog No. 5100 which includes complete lists of all O-Ring listings.

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more of pressure between the pint hole and the "ice collecting end" of the instrument. This test consists of a balance "U" extending into the narrow lane the base of the U are drilled ten 0.014 in. holes. When these holes are up, the balance with pint process is disturbed, and a heating element is activated which melts the ice on the collecting end. Speed of cycling of the balance indicates type of ice accretion and is recorded on film.

► **Efficient Cleaning-Magnason** believes Nordwest has one of the most efficient and effective parts cleaning set-ups in any airline. Used primarily for engine components, it is also used to a lesser degree on the propeller, sheet metal and necessary steps for the cleaning of parts in these departments.

Parts first pass through a vapor degreaser using a trichloroethylene solution at 150°F. The solution is kept at the proper strength by mobile testing at NW's chemical laboratory.

The engine parts are dried in Magnason Agalox tanks containing liquid called Magnason 755 at 140°F. The 755 solution also is checked for strength once a week, changed each 6 months. The parts are finally rinsed in Stoddard solvent. Reconditioning costs about 75% of the solvent Magnason says that the method of cleaning has largely solved the main problems of removing carbon and pyrolytic deposits.

He finds that NW's method saves manpower, is rapid in action, is economical, and is flexible because it can handle either large or small volumes of work with ease.

Magnason owns three agencies for cleaning engines, including jet and Vapor Blasting of cylinders and valves R-1000 15 machines, R-2500, 22 machines, R-4500, 56 machines.

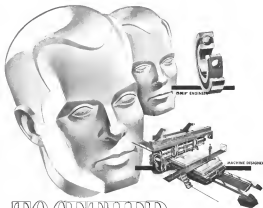
Nordwest has acquired a fleet of DC-7s in part to offset the loss of its 70-7s. Some new purchased recently, others were traded with California Central Airways.

Chiefly at the center up, that they have no immediate plans for the purchase of new, modern, lighted in engine equipment.

TWA 4-0-4s to Have Movable Bulkheads

Kurtis City-Town World Airlines' soon-to-be delivered fleet of 44 four 4-0-4s will feature a movable forward bulkhead, say TWA officials.

The partition can be moved around three rows of seats. Forward seats may be removed to provide cargo space when loading no direct. Conversion takes 35 min, according to TWA, and cargo tie-downs have been provided.



TOGETHER

a team that "cuts" production time

The world's first machine tool for the three-dimensional routing of self-reinforced composites will soon be in operation. Here it is accuracy are General Cutterhead Motors—their accuracy assured by their Single Row Deep Groove Precision Ball Bearings.

Why, when today it's pretty hard not to buy good bearings, did General specify SKF for the Ciddings & Lewis "Skin Mill"?

Simply because by specifying SKF, over the years General has gotten other things along with the bearings—the tenetwork of experienced bearing engineering specialists at SKF's headquarters, the tenetwork of SKF field men who are qualified specialists in the application of bearings to machine tool designs, the expanding production facilities of efficient, up-to-date plants.

Whatever your product, your engineers and designers can have this helpful tenetwork simply by making for it.

7189



SKF BEARINGS

Ingenuity • Dependability • Accuracy
Maintenance • Perfect Load • Perfect Uniformity
Engineering Service • Field Service

SKF INDUSTRIES, INC., PHILADELPHIA 22, PA. — manufacturers of SKF and SKF STOCK Bearings.

NEW CONVAIR-LINER 340

combines maximum safety and unequalled vision by using Pittsburgh Flexseal Safety Glass



WHEN AMERICA'S newest twin-engine transport — the new Convair-Liner 340 — goes into airline service early in 1962, it will become laminated glass in every opening. This important contribution to passenger safety and convenience is the result of the combined efforts of the aircraft builder and Pittsburgh Plate Glass Company engineers.

The passenger cabin windows make use of a new and improved offset design of Pittsburgh Flexseal Safety Glass. This tempered glass

and plastic lamination, securely mounted to withstand the demands of high-speed, pressurized operation, gives passengers a clear, "photographic" view of passing scenes.

The windshield and adjoining "direct-view" (DV) windows are Flexseal, too. The windshield is of offset design, permitting installation of the Flexseal Safety Glass from outside the plane. It is laminated and equipped with electrically-heated NESEA Glass for unobscured vision under every flight and weather con-

ditions. An offset design makes the Flexseal Glass an integral part of the operable "DV" windows.

The experience of Pittsburgh engineers in glass and glazing methods, together with our research and production facilities are at the disposal of all aircraft manufacturers, large and small. Bring your Safety Glass and glazing problems to Pittsburgh, where you receive careful attention. Pittsburgh Plate Glass Company, Room 2517-1, Grant Building, Pittsburgh 22, Pennsylvania.



PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS

PITTSBURGH PLATE GLASS COMPANY

Hot Air Jets Chase Fog Away

A new, robust heating system designed to remove snow and ice from runways and dispersal logs has just been patented by Paul L. Gensinger of Aeroseal, Inc., Hydrusburg Corp., Long Island City, N. Y.; the company has announced.

Using water at 100-400°F under pressure of approximately 250 psi in pipes about 1/2-in. in diameter, the feature of the system, sufficient heat is provided to keep the surface clear under the most adverse conditions of ice and snow, the inventor says.

Gensinger told Associated Press that about \$10,000 has yet to be expended to test the runway actually, then do road trips to roughly 100 ft to various different heat.

Gensinger claims that because of the movable heat transfer properties of high temperature water, pipes may be small in diameter and spaced at wide centers, resulting in considerable savings in steel, masonry, trench equipment and maintenance costs, compared with other systems.

The inventor says his heating system is "also applicable to other airport facilities such as taxiways, loading aprons, airport buildings and hangars."

Fog dispersal is achieved by ejecting jets heated by the underground hot water pipes into the runway. Gensinger estimates that the maximum height of effective fog dispersal with his system is 20 ft.

Successful laboratory tests of the system have been under way at Bethlehem, Pa., for the past two years, and the Navy has expended considerable money in its project, the inventor of the system claims.

British Mobile Unit For Change of Air

A new air mobile conditioning unit, Type B-1003 "Triller," being quickly produced by Sir George Coulsons and Partners (Canada) Ltd., Montreal.

An unvarnished number of the units will be supplied to British Overseas Airways Corp. for use along the carrier's routes.

The machine's cooling section can supply 1,800 cu. ft. of air at 12°F when ambient temperature is 110°F. It has a heating capacity of 300,000 Btu/hr. For testing values, humidity ratio, it can provide up to 1,900 cu. ft. of air at pressures up to 22 psi.

The unit is designed to operate at altitudes up to 7,000 ft and in any climate.

Dendritic and fugitive can be introduced in ongoing air.

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... you should know that you are in new, modern... these hundred... you can plan your flight from coast to coast on... crystal-clear... reliable... designed for both small and large... safe and reliable to operate and you can never be lost. The... superior performance any... telephone call, Editor of Air Force,

TAC does what no other tool can do!

AT LAST! AN OPEN-ING BATTERY WRENCH—the world's first... TAC... TUNING APPLIANCE CO. 210 South Street • 1001 First St. • Los Angeles, Calif.



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NEW AVIATION PRODUCTS



Big-Plane Weigher

A compact electronic bar for weighing of all but the heaviest aircraft by use today now is being produced by Cies and Stevens Aircraft Corp.

Weights range only 15 in. thick, the new rig, Type CS-7B, is easily packaged in a suitcase for convenient handling and can tell weight of military and transport planes weighing the scales to 300,000 lb. It already has been purchased by such forces as: Douglas Aircraft, Boeing, and by NACA and Bureau of Standards. The maker reports: Accessories are now on the way to those as a lot of 150,000 lb. capacity produced by the same firm and ready used in the industry.

The equipment includes three load cells (resistance wire strain gage load pickup) each of 100,000 lb. capacity for component loads. Load cell and gage may be taken individually or installed, depending on circuit design specified. Accuracy is given as 1/2% of one percent throughout the entire weight range of the unit. The set is available with a "Power Pack" for use with 115-volt, 60 Hz/50 Hz. contact. Cies and Stevens Aircraft Corp., Muskegon, N. Y.

Tough Plastic Rope

Wide military and civil use is seen for a new Polythene plastic rope which floats, remains flexible down to -60°F and weighs less than dry hemp.

The rope, having possible application in more severe jobs, towing, etc., has advantages over similar nylon products, according to its maker, Plastic Rope Co., Inc. The Polythene material used is resistant to fumes, acids and concentrated mineral acids, while nylon is not, says the firm. And specific gravity is .92 compared to 1.09 for nylon.

The rope has high electrical insulating qualities, can be subjected contin-

uously to temperatures of 212°F, is not affected by sunlight, salt, seawater and is said to be resistant to any known solvent at normal temperatures. It is slightly elastic to take up shocks and is supplied in diameters from 1 to 7 in.

Plastic Rope Co., Inc., Redwood City, Calif.



Air Cargo Dolly

"Roll-A-Lab" air freight dolly, designed specifically to isolate stress on plane floor during loading operations, have been placed on the market by Skanes Engineering & Supply Inc.

One rubber tire on three casters spread out the load. They also are of large diameter than normally used with equipment produced by the firm. 3.6 in. hard trucks, the dolly are used one at each end of the load, or more may be capacities from 500 to 2,000 lb. Large models for aircraft service are under development to carry loads from 4,000-5,000 lb./pair.

Skanes Engineering & Supply Inc., 1935 E. Franklin Ave., Minneapolis 6



Resistant Rubber

X 1047, a new rubber compound for gaskets, bushings, seals, etc., designed to keep swelling and shrinking of these parts at a minimum when used with various oils, has been developed by Armstrong Process Co.

The product gives maximum resis-



Engine Instruments by WESTON

Meet the latest military specifications. Hermetically sealed, and with fittings clamped to conserve panel space. Quickly installed by simple clamping method. Available in Temperature Instruments for basic aircraft requirements. Weston Electrical Instrument Corporation, 579 Eastinghouse Avenue, Newark 5, N. J., manufacturers of Weston and TAGGline instruments.

Other WESTON instruments for aviation service include:
R.S. Constant Pressure Indicators—Positive Indicators—Special Flight Instruments—Accelerometers, Voltmeters and Frequency Meters—Complete electrical and electronic Test Equipment

WESTON

Aircraft Instruments

**On tough sealing
jobs like this...**

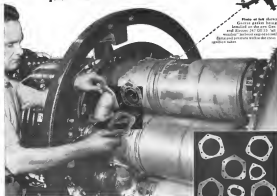


Photo at left shows Goetze gaskets being installed on the engine and turbine (N° 20-25) of a turbine engine. The gaskets are made of a special material which is resistant to high temperatures.

J-M Goetze Gaskets guard against critical flame and pressure leakage

Keeping flame and pressure from leaking where even a speck of smoke could be a disaster is the job of the new J-M Goetze "go-welder" turbine engine is a typical example of the difficult and critical sealing problems now are solved with Goetze concentric flange gaskets.

The particular Goetze gasket used for this job is a semi-circular stainless steel, precision-made to fit tight and stay tight in service. It withstands temperatures to 4500° and all operating pressures normally encountered in this type of service. Its flexibility prevents against vibration, expansion and contraction.

Like all Goetze gaskets, this style is backed by more than 60 years of Goetze "know-how" that has solved a way of industry's most complex sealing problems with gaskets of every design, shape, and size. And it is made on the same modern machinery that makes Goetze gaskets to fit every order with reasonable promptness.

For further information about Johns-Manville Goetze gaskets... and other J-M products for the turbine industry... write for brochure AV-54, Address: Johns-Manville, Box 256, New York 16, New York. In Canada, write: John Jay Street, Toronto 1, Ontario.



J-M Goetze Gaskets can be fabricated in any shape for sealing turbine engine and accessories. Above examples are standard.



For turbine engine gaskets J-M Goetze Co. has provided the solutions required to exist since its origin nearly a century ago.



Johns-Manville

PRODUCTS for the
AVIATION INDUSTRY

ance to working in low ambient point of, and has a minimum shrinkage to high ambient point of. It is a Ferro N compound of 70 Silver. A dual-cure. It will not corrode or otherwise damage such metals as aluminum, magnesium or stainless steel. Aircraft Process Co., New Bedford, Mass.

Airborne Switches

Artificial switches for use with radio communication and other airborne equipment are being produced by Kefu Electric Mfg. Co., Inc.

The switches, toggle type made in various pole-thru combinations, are built to meet 1AN-33 specifications. They are designed for use in d.c. and a.c. circuits with frequencies up to 1,600 cps. The units incorporate a single hole for mounting, are mounted in dielectric housing. Various styles with screw terminals or solder lugs are obtainable, and parts are tested to prevent corrosion.

Kefu Electric Mfg. Co., Inc., 635 641 S. Fulton Ave., Mt. Vernon, N. Y.

ALSO ON THE MARKET

Efficient fire protection for larger structures, offices and other areas is provided by CF fire extinguishers which hang from the ceiling and give wide spray with concentrated spray by hand. Shop-Fix, Inc., 125 Adland Place, Brooklyn 1, N. Y.

Highly active "44" wire flux reportedly for surfaces are, thus now known for fast soldering. The specially strong wire is non-corrosive, electrically non-conductive and was developed to meet rapid A2 Spec. No. 4164-01 (MIL-STD-131) Red. Spec. Q-S-4773 and MIL-8672 (AN-8-62). Kester Solder Co., 4181 Wrightwood Ave., Chicago 39.

Quick make or break handset for disconnector for distant control and/or eyeless transmission and other applications where handset break is a problem is available. Independent Electrical Instrument Co. is designed to close into artificial cycling or "jitters". Stevens Mfg. Co., Inc., 69 S. Walnut St., Mansfield, Ohio.

"Conti-Lab" for metal cutting and drilling operations is a new lubricant compound solution that reportedly can stand 24 hours more heat than conventional oils. The product is emulsified, non-rusting, has high film strength, low viscosity and will operate with water, says developer Air-Cor Chemicals Corp., 4107 N. Duane Ave., Chicago 33.

Clary takes bearings out for a spin



Bearing Reprocessing Includes Electronic Spin-Testing under Rigidly Controlled Conditions—

All steps in the reprocessing of aircraft bearings—gross-cleaning, size-sieving, preservation and repackaging—are carried out with Clary-developed precision instruments under tightly controlled conditions of temperature and humidity. If you have an aircraft hardware problem—manufacturing, preservation, repackaging, testing, packaging or preservation—Clary is fully equipped with the experience and facilities to help you solve it.

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More motor per pound
in this completely new design

Now you can have a lightweight, continuous-duty, explosion-proof motor. This new construction in integral horsepower ratings represents another Westinghouse first in the Aviation Industry.

This revolutionary d-c motor is completely self-contained. No flux or other external excitation equipment is required. Special frame and rotor design provides complete protection and permits continuously operation . . . with only a slight increase in weight over corresponding a.c., self-excited motors.

These direct drive motors cover a range from 1 to 4 horsepower and weigh from 20 to 28

pounds. They are available with standard AND mounting pads or with special mountings. Radfennex filters are installed. This new design has been explosion-proof tested according to USAF specifications.

Look into this new money. Call your nearest
Westinghouse Office or write Westinghouse Elec-
tric Corporation, Aircraft Department, Lima, O.
44090



AIR TRANSPORT

What It Costs to Run a Modern Transport

| | CONVAIR (Cost per hour) | | DOUGLAS (Cost per hour) | |
|-------------------|----------------------------|-----------------|----------------------------|-----------------|
| | CV240 | CV340 | DC-6 | DC-6B |
| Flying operations | \$73 25% | \$75 55% | \$111 10% | \$118 10% |
| Maintenance | 26 40% | 20 40 | 44 12% | 44 12 |
| Depreciation | 30 87% | 30 87 | 43 95% | 43 93% |
| TOTALS | \$122 52 | \$126 82 | \$199 17 | \$205 45 |

*Efforts directed to collecting evidence from FBI records.

[1] A. A. Korovin, *Mathematical models of stochastic systems*, Nauka, Moscow, 1980.

10. Based on an average purchase price of \$400,000 for a property, and assuming depreciation at the following rates: 3.33% (first year), 10.00% (years 2-7) and 16.67% (years 8-28), the total depreciation deduction is \$1,000,000.

[4] [80%] are covered purchase rates at approximately \$112-\$160 for adults and again, \$161-\$190 at 7 years and 10%, \$191-\$220 at 8 years and 10%. Callusat

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27) Search for mortgage price at \$100,000 for almost all squares \$1,200,000 at 2 years 14%, residual, \$100,000 at 5 years and 14%, \$100,000

Costs Per Mile & Per Seat Mile

[illegible]

(2) 10 ml incubated 7 min; measure diam. (2) 10 ml incubated 10 min; measure diam.
Plasma collected by centrifugation at 1000 \times g for 5 min at 4°C.

Growing Use Seen for Twin-Engine Planes

- * And two-thirds of traffic is in that bracket; but four-engine planes show up better on long hauls.

Dr. F. Lee Moore

Vehicles may soon start a third round of base engine foot increases on top of the 235 Cooper 94th and Virtue 4.0-4s already added.

Here are some current developments that have several subjects making new inquiries at Constar and Martin, and reproposing their future operating plans and cash requirements.

* Unless 504-mile flights are proved to be the market for well over half of all

airline passage, travel, a 170-page brief for survey round last week by the Air Transport Assn. Research Department alone.

- Shortfall in each place of the Cool Resources Fund have subject study ing possibilities even though most of them appear being it right now be come shortfall amount is heated

• American Airlines ordered 24 more long-range DC-6Bs this year—but not a single new twin-engine plane. Observers say outside American's delinquent

• Concorde 390 orders went to 130 places this month as the Dutch ordered 14 on top of the recent National Airlines order for eight and options for six more. KLM will take on, Garuda Indonesia, Transavia and others.

• **Miami 404** starts flying scheduled operations for KeyWest and TWA, and south. A \$2 million public relations campaign will convince politicians of

- Demand and supply of airline services

• **CAR** national network of autism info

How Far Do Airline Passengers Travel?

Two-thirds of the trips taken on scheduled U.S. airlines are for distances under 500 miles. Figures compiled by Air Transport Association and Civil Aeronautics Board show the percent breakdown for various length trips, as of Jan. 1979 (left).

| SHARES | New York | Chicago | Washington | All Markets |
|-------------|----------|---------|------------|-------------|
| | % | % | % | % |
| 0-99 | 24 | 15 | 34 | 25 |
| 100-199 | 19 | 20 | 34 | 19 |
| 200-299 | 5 | 11 | 11 | 11.3 |
| 300-399 | 4 | 5 | 6 | 4.6 |
| 400-499 | 6 | 4 | 7 | 4.9 |
| 500-599 | 7 | 7 | 8 | 4 |
| 600-699 | 10 | 10 | — | 4.6 |
| 700-799 | 7 | 4 | — | 2 |
| 800-899 | 1 | 1 | — | 2 |
| 900-999 | 2 | 1 | — | 2 |
| 1,000-1,999 | 3 | 1 | 1 | — |
| 2,000-2,999 | 30 | 1 | 1 | — |
| 3,000-3,999 | 1 | 1 | 1 | — |
| 4,000-4,999 | 9 | 0 | 0 | 12.4 |
| 5,000-5,999 | — | — | — | 2.5 |
| 6,000 Up | — | — | — | 2.7 |

[illegible]

in March of last year reveals that two-thirds of all U.S. domestic airline passengers travel less than 100 miles. And a CAB estimated now that will always be true—or that the trend in the short-haul traffic to increase more than long-haul. (The new ATA survey covers in divided cities only—has no national or all traffic segments.)

• Under 100 Miles-Air Transport Area's just published survey—"Major and Air Passenger Traffic Served by U. S. Domestic Trunk and Local Service Carriers"—tells how, for U. S. airline passengers, to and from each U. S. and Canadian city.

Every airline ticket sold in the months September 1940 and 1949 and March 1949 and 1950 is tabulated and interpreted in the survey.

An ATA spokesman comments "You will note from this study that there is a lot more passenger traffic under 500 miles than a generalist would, and most of the traffic is still between big cities."

Whether airlines are ordering too few short-haul transports to keep pace with the rising demand is not ascertainable from our transport index.

► **Here Is Why**—On the 561 new transport orders approved so far by the Defense Production Administration, 180 are for 4-engine long-range Super Constellations and DC-6Bs and Acs, 203 are short-range twin-engine Martins 40-4s and Corsairs 140s.

But most of the two-engine orders are for replacement of pre-war DC-3s, whereas a large proportion the new 4-engine planes ordered are for fleet addition. American has ordered 25 new DC-4Bs, since DPA approved the aircraft previously.

To get at the dollars and cents of two-engine, short-haul transports, Aero-Union, which assembled a cost comparison of direct unit-costs of the Convair and the Douglas DC-6 and the CV-440, is shown on page 10.

► **Shortland vs. Longhorn**—The study is based on official airline reports to the CAB. It indicates that two-engine planes land under 500-mile passengers considerably cheaper than single-engine planes when comparing existing first-class seating density, engine configurations, service designs, and seat duty allocation of the planes.

But between 900 and 700 miles the direct cost advantage of the Cuvare starts to narrow rapidly, shifting from the 240 to the DC-6 near 800 miles and from the 140 to the DC-6B near 1,000 miles, as computed from fretting rate

I further comparisons from the cost analyses show that when it comes to high-density air coach seating on short-haul (to 4-engine plane) over the west, or even less per seat mile, if the air coach load potential of a particular flight is high enough. But Conquest

iii- on short hauls a coach Carrier will keep its substantial cost advantage over a freight coach transport.

Whether shortfalls are much would be in two-engine or 4-engine planes would depend largely on the individual circumstances of the airline and the shortfalls/needs.

Convair says its 240 seating density can be increased to 56 passengers and keep the same cubic foot of air and square foot of seating area per passenger as the present DC-6 coach (passenger).

And the Comair 340 can carry 60 passengers and keep the same passenger space and air vents as the coach DC-6 and Comair 300er would do that by removing the carry-on luggage racks and the cargo compartment, providing other aircraft must be larger.

► **Could Heal 70-What's more,** my Chevy if sent spiking it ordered to that of the contemplated DC 68 coach versus (presumably Fox American's 82 passenger coach), the 340 will have 70 passengers on a run such as New York-Washington.

P-3, Good 84-3. CAR economist says he believes two engine cracks will pose no high density shortfalls, even using the standard Corvus density. Load factor is the crucial consideration. But he points out that right now, airlines tend to use the entire equipment shortage by converting to 82 on the Corvus load factors at first class fares of 6 cents a mile.

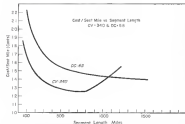
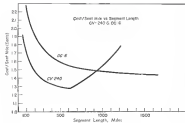
So a twin-engine Concord at Martha's vineyard service may be unnecessary, now he says. But when normal fuel prices return to first-class service they'll make coach first on twin-engine planes a good bet on some routes at some time — to fill out the plane.

For instance, if a Washington New York, Conn. air 240 were running a 98% load factor (20 passengers) at 6 cents revenue a passenger mile the plane is making only \$1.20 a mile. If a fare is reduced to 45 cents a passenger mile could produce an 80% load factor (16 passengers) the same plane could make \$1.44 mile.

*** Transit Problems—But an American** Indian official says there are only a few major variables for such a secure system. Take New York-Washington, he says. On that route the terminal airports are so crowded with air traffic that they're unusable.

The drivers and supports of the two cities can't stand much increased bus and continue to maintain moderate satisfaction as time progresses. Another problem he points out is the traffic and bus fare coming and going New York Washington no coach fare is \$11.15 including tax, while the train coach fare is \$8.72

If you're going from downtown to downtown, you have to add about 5



were to the extent \$2.45 (twice the advantage, as experts may make short-hand) as much skill about method more expensive than those in many of the best potential method as much as the

And off-hour utilization of otherwise idle equipment doesn't hold the same promise for shorthaul as longhaul or coach, says even fewer than the standard CAR longhaul coach rate of 44 cents a mile.

▲ **Using New York** Washington traffic as an example, if first-class traffic drops off each night at 10:30, it might be assumed that reduced fares starting at 9:00 would pay through existing side equipment. But the fare is constant, so a peak at 9:00, he could have taken the train when he could make it.

► **Play Out Wind—Northrup** American Airlines, the CAB and other airlines are shortlisted for crash with twin-engine planes causing as certain threat, when economies, close unity and the

local thinking. There's all slated for
fast class server

On the other hand, the much played of American, Eastern, National, Per American, IWA and others are reflected in some dramatic phone calls.

■ **Sherrill Road Program—**The AEA survey shows that over 58% of big city travelers by less than 500-mile distances (both inbound and outbound) will utilize either two funds in order for less than 300 miles, cities in congested areas where surface transportation is poor also have a preponderance of short-haul travelers.

Here are million of the percent of
travellers doing less than 500-mile trips
for a number of big cities.

• New York 56% Chicago 48%
Washington 69% Atlanta 45%, Dallas
64%, St. Louis 64%, Kansas City
61%, Boston 47% (with 69% under
780 miles) Detroit 61% (with 82%
under 800 miles), Buffalo 90% (with
67% under 380 miles), Seattle 59%
(with 68% under 708 miles), San
Francisco 51% (with 65% under 708
miles), Los Angeles 49%, Shreveport
78% Indianapolis 73% (with 68%
under 390 miles)

Over long distances to the north of Mexico, overland travel is the only option, with only 19% of travel under 500 miles, 16% between 500 and 1,000 miles, but 65% of all travel between 1,000 and 1,300 miles.

These figures refer to number of passengers—not to passenger revenue. It takes two 500-mile flights to equal the turnover volume of one 1,000-mile flight. And profit margin is higher on the longer flights.

However, there's more business volume potential in the charter business as we move up in price, bus and

► **About Cost Figures**—Here is how the companies find their average costs: data for two-eyeded Centers vs. DCCs is provided.

* Airline-reported costs for the CV 240 and DC 6 are from CAA files. These costs are divided into three main types: flying operations, maintenance and depreciation. To avoid distortion by different data, valuations of various airlines, eight lines a day valuation of both DC-6s and Convairs was examined.

- This is average segment length. Hourly costs are used, and reduced to cost per mile per segment length by computing from block-to-block speed.
- Dependence on the DC-6 and CV-140 is based on average purchase cost to the airlines. For the new DC-61 and CV-140, depreciation is based

present profits for the planes, engines and spurs.

Other adjustments for the new DC-6B and CV-440 are made from similar cost experience of their predecessors. The following management Minimums cost is assumed electrical flying operation cost is assumed slightly higher maintenance costs, utilization is assumed the same-eight hours a day.

Result is an estimate of average total mile costs for all the airlines using these planes, not one airline would conform exactly, but that is an average.

Since airline operations vary, the cost figures shown here are subject to all pertinent for each airline and airline operating system. For instance in the cost data, eight-hour operation per day is assumed for both twin and 4 engine planes. But quick utilization of a long-range plane that flies through the night may be higher than a short hauler twin-engine plane on narrow routes.

Airline Wage Rules Decided by Board

Author wage stabilization rules are set in the Railroad and Airlines Wage Board under applying the government's cost-of-living and other regulations to the 150,000 employees of the airlines.

It violates the wage action controls have taken during the last two months under the self-administering clauses of existing agreements and it permits them to go on self-administering.

Chairman Nelson M. Bates of the RAWB members in Regulation Number One, making some 28 changes at day of various stabilization limits as flexible to the members in various industries. Former Executive Statisticians under Administrator Eric Johnston had

approved the action. He set up the three-member RAWB Sept. 27.

Chief proponent of the RAWB Regulation No. 1.

New airline employees, dislocated, or unemployed, professional or outside salaries may get better, nevertheless, stock options, stock purchase plans, cost sharing increase, interplant security union.

Other employees. All other airline employees than classification shows may get more salaries the 10% "catch up" formula, cost-of-living increases, transfer adjustments, time labor group contract laid to another, fringe benefits, housing, incentive or piece work plans, interplant security union.

The RAWB regulation is a ten-point outline put out by the new board in a charter. The board intends to modify and extend it to special airline or rail problems areas that don't fit in the preliminary regulation.

The Board has RAWB membership • Nelson M. Bates, chairman, controlling also as chief of the Industrial Relations division of the Bureau of Labor Statistics. He was during World War II assistant in charge of wage and salary stabilization with the National Railroad Labor Board.

Walter C. Niles, assistant, controlling also as chief of the Litigation Branch, Office of Labor Practices, Justice Dept. He worked with Bates on the RRLB in World War II. He has also served with Presidential emergency boards in an and ad disputes.

James A. O'Neil, Jr., member, and former National Railroad Board full-time executive director of RAWB is H. Raymond Carter, who came from National Labor Relations Board and recently arrived with the commission. Executive Railroad Wage Panel reported this Sept. 27 by RAWB.

CAB Sets Seniority Pattern in Mergers

The Civil Aeronautics Board has approved Pan American to grant full seniority to employees of merged American Overseas Airlines, by a formal set forth by CAB.

The board's seniority pattern (Member Joseph P. Adams dissent) strict integration of seniority of employees of merging companies should, if possible be left to voluntary agreement or arbitration. (But we are least dealing with a particular situation in which the public interest and the achievement of the policy objectives of the Civil Aeronautics Act require an intervention.)

The Board involves PanAm, its pilots, and AOA.

Such action has been made necessary only because of the failure of all concerned to live up to the responsibilities to the public to make reasonable efforts to accommodate their aircraft while demands and reach a common ground.

Seniority Formula—CAB sets a rule, basic formula for computing employee seniority. Length of service with any of the merged parties sets basic seniority status in the final merger situation. In this case, it includes all employees with Pan American, American Overseas Airlines employees were transferred in the deal, American Overseas Airlines (the merged company as Air subsidiary), and West Coast United Airlines (predecessor of AOA).

Special cases are also treated in the CAB rules. Former AOA pilots get credit for past service on contractual scheduled airlines. Former AOA crew members with Registered Nurse classification into grade pay with Pan American as PanAm has no Registered Nurse classification.

All seniority rules of the merger laid down by CAB now apply retroactive to Sept. 25, 1958.

CAB Member Adams dissented. He said CAB does not have authority to impose conditions upon labor groups which airlines sought to oppose a merger. He says the Supreme Court case cited by the majority "did not go so far as the majority tried to go it. Their decision provided only that the Interstate Commerce Commission could require compensation to be paid by the carrier to employee groups adversely affected. The case referred to is U.S. v. Lowden, 358 U.S. 235, 1959.

Assuming CAB did have jurisdiction, Adams dissents on the basis that the pilot seniority should apply only to employees with air service with the American Overseas Airlines.

SHORTLINES

Airline Cagay Asia is a U.S. San Francisco son of air cargo interests at that area. PanAm cargo superintendent R. J. Mowbray is chairman. Other of firm include representatives of Philippine Air Lines, United, TWA and Flying Tiger Line.

Air Transport Associates, Inc., Seattle Alaska, wanted, has failed to get the U.S. Court of Appeals, at Washington, D.C., to reverse the CAB on Pan American's scheduled Alaska Service has approved. The would change Alaska and thereby remove its lower fare below cost to meet needed competition. Court dismissed the appeal on grounds it is CAB's territory. CAB has the fare included in its general fare integration of the rates in that area.

Alaska Airlines has settled a new wage contract with its pilots. Terms reportedly include pay about 15% on average. Threatened strike averted as Mediation Board got the airline and pilots to its own route to avoid "hitches" loss to all concerned. Revised negotiations came to visit settlement.

Vietnam Airlines receives a 2-year batch order of living wage increase starting next month for 10,000 of its employees, as called for in terms of its wage contract.

Canadian Pacific Air Lines has purchased three DC-6s.

Chicago and Southern Air Lines' vote in a recent ended the week. Chairman Charles Parsons, only voting transport revenue chairman of the board. All but certificates are being exchanged for common shares.

Colombian Airlines has had talks with American Coast doctrine of operations Director G. Rabinovich about possible contracting work, but Colombian president Alfonso Lauro says matters of reduced one among the companies, officials are wrong. Any basic Colombian non-agreement changes in the near future would probably only come in a result of merger. Lauro says... company has been hired \$15,000 by Canada for evaluation of foreign exchange control board while under Senator Jaso's management. Canada on U.S. line \$12, 800 in dollars through Colombia's alleged financial institution.

Continental Air Lines has acquired Route 28 stops at Kansas points, Manhattan, Junction City and Ft. Riley in

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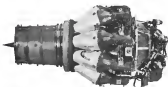


PORTLAND INTERNATIONAL GROWS

April view of the Portland International Airport, Ore., points up runway extension (arrow) which (arrow) length is 1,050 ft., making it the longest commercial runway in the Pacific Northwest. In addition

to the Alaskan road, General Air will be used by Alaska Airlines, Northwest Coast Northern, Pan American, Western Coast and Western Airlines planes.

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In building the J-42 Turbo-Wasp jet, Pratt & Whitney Aircraft adds another first to its already impressive list of achievements. This jet engine is the first authorized to go 1,000 hours between major overhauls.

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AVIATION DIVISION

5

EDITORIAL

Voluntary Censorship: An Experiment

AVIATION WEEK today starts a 60-day experiment in limited, voluntary censorship in cooperation with the United States Air Force. For at least a two-month period this magazine will lower its own iron curtain on the Air Force's giant fleet of jet super bombers and one of this country's major investments in aerospace against our aggressors.

We proposed the plan to Secretary Feltner after he authorized the following press statement Nov. 29:

The Boeing XB-52 which has been called one of the Boeing Seattle plant is still a classified project. Every effort will be made to protect the security of the aircraft by means of proper cover-ups and other procedures. In the interest of protecting security, the Air Force is requesting that no attempt be made to photograph this aircraft. When it develops that classified information concerning the status of the plane can no longer be kept from potential enemies, security-approved photographs may be made available by the Air Force. Until such time the completion of new media is requested so that information regarding the airplane may be kept from any potential enemy as long as possible.

Aviation Week will cease publishing for at least 60 days any unclassified references to the Boeing XB-52 that would indicate progress of construction, tests, production, status of orders, or any dimensions, specifications, performance or other data, or indications of changes in such data.

The plan is more than a mere decision to print only current data that has been cleared about a single bomber model because we shall print no references, comments, or soundbites of information about the XB-52 which Aviation Week or any other publication has ever published in the past.

Nor will we quote or paraphrase or report in any detailed manner any technical material which may appear in any discussion of communication between now and the expiration of the 60-day trial if such material was not approved for publication in advance by the Air Force, Department of Defense, or other appropriate U. S. government agency and if such agency still believes further publicity should not be given the report.

Individual decisions will be made on the publishing of data by members or contributors of Congress or reputable government officials.

Nor will we quote or report in any detailed manner technical material about the XB-52 which may appear in foreign publications which consider themselves outside the jurisdiction of U. S. government security agencies, if such material is objected to by our own Air Force. Such foreign news is currently picked up in this country by Aviation Week and others.

However, our staff, our correspondents and our other regular news sources will be instructed to continue sending to the editor—although it will not be printed—all material on the super bomber which would become available to us in the normal operation of a business and technical aviation magazine and all of our news contacts will be asked to forward to us all clippings, reports, articles and notices of other XB-52 publicity appearing in media other than Aviation Week.

All material which we gather but do not print will be used to help us decide at the end of the experiment whether the effort and results were in proportion and whether we should abandon the plan or continue it with modifications. We hope to make definite suggestions to the Department of Defense, based on day-to-day experience with its current security philosophy.

Obviously, this experiment was suggested by the world chaos on security and censorship. The Truman Administration, the press and the public are so unbelievably confused on the public information question that probably many conscientious publications have been perplexed about how to take some kind of constructive action in the current situation. Should we print news news or less? And what kind of information or restrictions are desirable?

Outside of the atomic aircraft project, which often little likelihood of furnishing enough information in the near future to be a big guesser, we believe the XB-52 "global bomber" offers the most important opportunity to achieve a vital segment of the military aviation program which could be used in a simple, realistic experiment under the stresses of actual decisions and competition from other media.

We congratulate the Air Force's intelligent decision to try to do something first to keep its own secrets about this new weapon before plunging for press cooperation for such secrecy. Too often in the past such requests have been followed by releasing the secret fighter or bomber into open yards on airports in full view of thousands of peering spectators, airline passengers, and other citizens.

Such stupidity has always worked against the best interests of the country because it never inspired any new service or publication to exert its most energetic efforts toward voluntary censorship. What was the use?

We don't know how many stories we'll be obliged to stop. Nor how many subscribers will disapprove and stray over to our competitors. We don't know how many other editors will join in this experiment. But in 60 days we shall find out. The results will be interesting. At least, our editors will cease complaining about the general censorship confusion while we make at least one effort to do something constructive under our own power. It's worth trying, even if it fails.

—Robert H. Wood

AVIATION WEEK, December 18, 1951

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